MERLIN

Deliverable D3.5

Diversifying Funding for Freshwater Restoration using Nature-Based Solutions: Lessons from the MERLIN project

Annexes

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Imprint

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Content

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Annex 1 – Case Study fiches

The Case Study fiches were developed early in the project with several purposes:

- To understand the scope and focus of restoration in the MERLIN case study
- To understand plans for scaling up restoration efforts
- To do a first mapping of benefits from restoration
- To characterise past experiences with different types of public and private sources of funding and financing
- To scope current understanding of case study partners of future potential funding and financing sources

The fiches were filled based on material collected during the proposal stage, early activities in WP1 and WP2, and further one-to-one exchange with case study partners.

GENERAL INFORMATION	
Name of the case study	
Contact person	
Country / Region	
Case study group	☐ Cluster 1 – Peatlands & Wetlands ☐ Cluster 2 – Large Transboundary Rivers ☐ Cluster 3 – Small Streams and Basins
Case study scope	☐ Regional☐ National☐ Transboundary
Size of case study	
Does the case study consider upscaling of restoration measures?	☐ Yes☐ No If yes, does this refer to upscaling of ☐ Restoration measures implemented **before** MERLIN ☐ Restoration measures to be implemented **during** MERLIN ☐ Restoration measures to be implemented **after** MERLIN
Twinned case study	
RESTORATION NEEDS	
Restoration area size	
Restoration needs to be addressed / objectives to be attained during MERLIN	
Measures implemented in the past	
Measures currently being implemented	
Measures to be implemented in MERLIN	
Measures envisaged for regional upscaling plan	

Measures planned more generally		
Expected work / results of restoration in MERLIN		
Stakeholders to involve		
Who has control over the restoration?		
IMPACT OF RESTORATION (COST AND BENEFITS) INCLUDING WITH UPSCALING		
Expected benefits of restoration on ecosystem functions		
Expected benefits on ecosystem services		
Is the restoration considered economically viable?		
Who can benefit from the restoration?		
Policies to which restoration contributes	EU: National: Regional / local:	
Who can lose out from the restoration?		
Expected monetary benefits of restoration		
Existing cash flows / value chains benefiting from the local bioeconomy (e.g. wood value chains, tourism, etc.)		
Potential to further develop existing value chains or design new ones based on the restoration measures implemented…	…before MERLIN	
	…during MERLIN	
	…after MERLIN	
PAST FUNDING AND FINANCING SOLUTIONS FOR RESTORATION		
Funding and financing Instruments used to pay for measures implemented before MERLIN	Income instruments	
	Contracting approach	
	Debt instruments	
	Market based instruments	
	Subsidies	
	Grants	

What form have payments taken?	Donations	
	In-kind contributions	
Performance assessment of funding/financing solutions		
Which type of funding/financing solution has worked particularly well?		
Failed attempts to use specific financing/funding solutions		
FUNDING AND FINANCING SOLUTIONS FOR RESTORATION DURING MERLIN (IMPLEMENTATION)		
Cost of measures implemented during MERLIN		
Are all costs covered or are you still searching for funding?	*For CAPEX*	
	For OPEX	
Source of funding and financing for MERLIN implementation	Income instruments	
	Contracting approach	
	Debt instruments	
	Market based instruments	
	Subsidies	
	Grant	
	Donations	
	In-kind contributions	
How are the organisations that provide in-kind contributions for implementing MERLIN restoration measures funded?		
FUTURE FUNDING AND FINANCING SOLUTIONS FOR RESTORATION (UPSCALING PLANS)		
What type of costs need to be covered?	Capital costs	
	Operational/maintenance costs	
What form should payments to those negatively impacted and to beneficiaries take?		
Which type of funding and financing solutions are of interest to support upscaling plans?	Income instruments	
	Contracting approach	
	Debt instruments	
	Market based instruments	

	Subsidies	
	Grant	
	Donations	
	In-kind contributions	
What are the foreseeable barriers to implement these potentially valuable funding and financing solutions?		
To support upscaling, do you have a strategy to share costs / realise economies of scale?		

Annex 2 – Sector fiches

The Sector fiches were prepared in the initial phases of the MERLIN project to characterise the funding and financing environment of economic sectors when seeking to restore freshwater ecosystems. It sought to assess the sector position towards freshwater restoration (impact on freshwater ecosystems, barriers and opportunities for restoration), including bottlenecks and entry points as well as good practice examples. This work fed into the Workflow and the workshops/exchanges with case study partners, as well as WP4 preparatory work for the Sector Roundtables. Economic sectors were based on the six sectors selected for engagement in WP4 (agriculture, hydropower, water, insurance, inland navigation, peatland).

AGRICULTURE

Agriculture occupies 40% of European land and creates 44 million jobs in farming and food processing. Depending on management practices, agriculture can be the source of numerous disservices, including loss of wildlife habitat and increased pressures and impacts on water and aquatic ecosystems. At the same time, sustainable land use activities have the potential to generate restoration benefits and financial return. These practices include initiatives such as sustainable production of food and fibres through regenerative agriculture, conservation agriculture, agroecology and agroforestry. There are funding opportunities related to sustainable farming systems that are both public, such as European grants, and private financing possibilities related with private companies that have sustainability at the core of their business.

Lead firms / leading European sector group	The following are some of the umbrella organizations promoting changes in agricultural practices and others representing the sector interest: • Copa and Cogeca are the united voice of farmers and agri-cooperatives in the EU • European landowners (ELO) main landowner association, include large landowners not just farmers. • IFOAM Organics Europe is the European umbrella organisation for organic food and farming. • Agroecology Europe, a European association to promote agroecology, was created on the 27th of January 2016 in Graux Estate, Belgium with the participation of 19 founders from 10 countries • ARC Independent NGO based in Paris with representations across Europe and working in policy advocacy, policy analysis and networking in the areas of agriculture, food, agroecology and rural renaissance. • IPES-Food: is an independent panel of experts shaping debates on how to transition to sustainable food systems around the world.
Use of environment, natural resources, and ecosystem services:	• Agriculture occupies more than 40 % of the European land area and 61 % of the utilized agricultural area is managed by farms of high to medium intensity in terms of their expenditure on inputs such as fertilizers and feedstuffs. • With 10.5 million farms across the EU, it is an important sector for the economy, providing food security. Around 44 million jobs in farming and food processing are dependent on agricultural production • Agricultural systems provide provisioning ecosystem services that are essential to human wellbeing, including food, forage, bioenergy, and pharmaceuticals. They also consume a range of other ecosystem services, such as pollination, biological pest control, maintenance of soil structure and fertility, nutrient cycling, and hydrological services. • Agroecosystems also produce a variety of ecosystem services, such as regulation of soil and water quality, carbon sequestration, support for biodiversity and cultural services.

Conflict with environmental interests:	• Depending on management practices, agriculture can be the source of numerous disservices, including loss of wildlife habitat, nutrient runoff, sedimentation of waterways, greenhouse gas emissions, and pesticide poisoning of humans and non-target species • Growth in agricultural productivity has been accompanied by increased pressures and impacts on water and aquatic ecosystems in the form of pollution from nutrients and pesticides, together with over-abstraction of water for irrigation, and hydromorphological alterations, from drainage, irrigation (water storage) infrastructure and livestock trampling. • Intensive agricultural use of drained/reclaimed peatlands has been shown to lead to severe carbon dioxide emissions, reduced water retention, and increased flood risk due to the oxidation and subsidence of the peat soil

Sector position to restoration and conservation. Barriers and opportunities	**Sector position on environmental issues and restoration:**
	a. Institutions representing the sector interest such as the European landowners (ELO) argue that managing sustainably in terms of agriculture and biodiversity requires that changes be perceived as fair by balancing the need for affordable and healthy food, the socio-economic well-being of farmers and the protection of the natural environment and water resources.
	  a. the EU nature conservation measures, and the EU Birds and Habitats Directives' obligations, still pose a challenge in implementation for many private land managers. The strict 10% protection target is one of the first bottlenecks of the strategy.
	  b. The sector supports the development of payments for ecosystem services in line with market practice
	  c. The uptake of more sustainable farming systems depends critically on their being attractive to individual farmers and the stakeholders in value chains benefiting from agricultural production.
	b. Institutions promoting a change towards more sustainable agricultural practices argue that sustainable land use activities have great potential to generate restoration benefits and financial return. This includes initiatives such as sustainable production of food and fibers through regenerative agriculture, conservation agriculture, agroecology, and agroforestry.
	c. Sustainable farming systems encompass a wide variety of types of agriculture, such as organic farming, which covers 7.5 % of the EU's utilized Agricultural Area, and agroecology.
	d. There are several barriers for agroecology: The comparatively small size of agroecological farms, making them less attractive to conventional finance; Limited access to land owing to unequal ownership and a rise in land value.
	Entry points to support finance and funding:
	
	Private financing
	
	a. **Supply chain investments** involve conventional supply chain actors encouraging or securing specific farming practices with benefits for restoration objectives, with the aim of selling the more sustainably produced goods with a premium. This includes for instance supermarkets developing their own green certification, such as Lidl LEAF certification. Few programmes focus however on the restoration of aquatic ecosystems.
	b. **Investments from social-/impact enterprises** take the form of commercial enterprises that have environmental sustainability and restoration as a core part of their value proposition to customers. Restoration work is a fundamental reason why customers purchase their goods or services. This may include as diverse set of companies as organic food actors or companies that develop and deploy technology to facilitate restoration and reduce production costs in agricultural and food systems.
	c. **Grants & donations by foundations or corporate entities** receiving some direct or indirect benefits for investing in ecosystem restoration. This may be occasional or more regular depending on the philanthropic programme of the company and different degrees of conditionality may be attached to the donations.
	
	Public funding
	a. Public payment schemes through which government pays farmers to enhance ecosystem services on behalf of the wider public. The payments schemes for ecosystem restoration in the sector usually take the form of payments to private landowners either based on the type of measures implemented or the results achieved (i.e. ecosystem services provided). Most funding comes from the EU Common Agricultural Policy Rural Development Programmes as payments for the adoption of specific farm practices. The restoration of aquatic ecosystems is often addressed in these programs. (To be further addressed in coordination with WP4)
	b. Grants: trough which governments pay a direct financial contribution for undertaking a specific activity. At the European level there are several projects promoting sustainable land use activities. For instance, the "Life is Forever" Project is funded by Life and aims to expand the implementation of successful management models for private landowners to ensure durable nature conservation

Case studies of restoration synergies or sector involvement	**Supply chain investment** ➢ Woolworths' Farming for the Future Program is a retailer-led sustainability program from one of the five largest supermarket chains in South Africa. The program drove increased adoption of environmental practices at the farm level using a partnership-based approach to working with their farmers allowing them to be part of a direct supply chain by selling directly to the supermarket. ➢ The Landscape Enterprise Networks is a system for organizing the buying and selling of nature-based solutions. The LEN systematically brings a diversity of private and public-sector organizations together around a common interest. They work by establishing and managing a regional trading system of collaborative value chains, each driving specific landscape outcomes for different groupings of businesses. In Cumbria (UK), parallel procurement have been issued for specific soil and nutrient management practices, such as reduced phosphorus usage, as well as creating bounded habitats. With a trade value of over £700k, Nestlé and United Utilities co-funded NbS delivered by farmers in the Peterril catchment. The initiative was coordinated by First Milk. This trade is leading to multiple landscape and business benefits: it creates an alternative income source for farmers, contributes to lower levels of phosphorus in water courses managed by United Utilities, and strengthens the resilience of Nestle's dairy supply. **Social impact enterprises** ➢ Businesses and food retailers such as Patagonia, Lehmann Natur, Léa Nature. ➢ Guayaki is a company that has built a market around yerba mate in the United States refers to this as "market-driven restoration," where profits from forest products are reinvested into the ecosystem. The company has planted 500,000 native hardwood trees to date and provides technical support to farmers to set up nurseries for native species. ➢ Wildlife Estates Label is a network of exemplary estates that voluntarily agreed to adhere to the philosophy of wildlife management and sustainable land use. Appreciation of the importance of biodiversity preservation is the fundamental reason for establishing the WE Label (Elo project). In Europe the best-known label in the field of private land conservation is the Wildlife Estates Label. ➢ Companies may develop and deploy technology to facilitate restoration such as Land Life Company that patented a product that enables trees to grow in dry and degraded land. Boost tree survival rates while reducing costs and water needs support ecosystem rehabilitation, captures carbon, and combats desertification. Also it is socially beneficial as enhances food security by aiding production of fruits, nuts, and fodder. **Grants & donations by foundations or corporate entities** ➢ Private foundations such as Fondation de France promote different strategies programs related with supporting value chains to promote strategies on "eating local". Also the Nina and Daniel Carrasso Foundation finance different initiatives (more than 800 projects to date) promoting research to understand sustainable food systems and also to fund innovative solutions to promote the transition to better agro-environmental systems. Other institutions implementing programs working with farmers and the promotion of sustainable practices are Fondazione Cariplo, Fondazione Feltrinelli and Heinrich Böll Stiftung. ➢ AEF is a multi-donor fund supporting agroecological practices and policies. It aims to support viable food systems, promote the economic well-being and human rights of small farmers and their communities, and mitigate climate change. Since 2012, AEF has awarded $9.48 million to 139 collaboratives that include a total of 293 organizations in Africa, Asia, Europe, Latin America and the USA. Funds are administered by Global Greengrants Fund.

HYDROPOWER

The sector plays an important role in energy generation but also faces challenges related with climate change impacts and the sector's environmental impacts on water bodies and biodiversity. The energy, biodiversity, and climate policies as well as the electricity market play a pivotal role in shaping the possibilities of the sector's sustainability and can significantly influence decisions regarding the construction of new infrastructure and decommissioning of obsolete ones. There are public and private financing opportunities for including ecosystem restoration measures in existent hydropower plants and related to barrier removal, including public funds, donations by private donors and environmental markets.

Lead firms / leading European sector group	• The International Hydropower Association (IHA) • The Nature Conservancy • EURELECTRIC • Hydropower Europe
Use of environment, natural resources, and ecosystem services:	• Hydropower plants play an important role in the production of renewable energy and in the reduction of CO2 emissions in Europe. • In the future, climate change will alter the water regime and increase sedimentation, affecting hydropower energy production potential.

Conflict with environmental interests:	• European rivers are the most fragmented in the world, contributing to the rapid decline in freshwater biodiversity. Only 40% of European surface waters are considered healthy today, with changes in hydromorphology being an important limiting factor. Hydropower infrastructure contributes to the disruption of river continuity affecting the flow of water and sediment downstream by creating segregated river fragments and leading to altered morphological processes and affecting aquatic organisms, in particular migratory species. • There are different action courses currently being implemented for addressing river continuity and potential environmental impacts of the hydropower sector: ✓ Focus on mitigating the environmental impacts of existing hydropower plants: can be mitigated through three broad types of physical measures at the plant itself: (i) Modifying the hydraulic characteristics of generating technologies; (ii) Introducing by-pass mechanisms for biological and mineral components; (iii) Operational measures, such as ecological flows or hydropeaking prevention. The manual for environmental design in regulated salmon rivers in Norway is an example of measures that allow for continued hydropower production in combination with reduced environmental impacts ✓ Focus on dam removal: Across Europe there are existing hydropower dams, existing plants that require renewal or renegotiation of licenses, thus, there is growing attention on removal of dams for river continuity restoration. The focus is on obsolete structures and those that act as a barrier for water, sediment and river biology. There are examples of these actions such as the Dam Removal on the Lillpite River, Sweden ✓ Focus on wider scale river restoration: To reduce the impact of existing plants, it is also necessary to holistically address the impact of the plant at the catchment level, which means going beyond environmental refurbishment of the plant itself, and engaging in larger-scale river restoration measures, such as natural fishways or restoration of habitats. The intervention on the Clondulane and Fermoy Weirs in Ireland is an example of these types of interventions. • Policy context: The use of water for hydropower is one of the key solutions supported by the EU's Renewable Energy Directive but it also is one of the biggest pressures on ecology and continuity of river systems, potentially compromising the achievement of Water Framework Directive objectives and other related policies such as the Biodiversity Strategy 2030 and the new EU Adaptation Strategy. The European Centre for River restoration recommends the following actions: not subsidizing projects that compromise the achievement of WFD objectives, requiring strict mitigation measures in regulatory permitting regimes, and implementing a revision of licenses for existing facilities to bring them in line with WFD requirements. • Examples of European projects on hydropower and ecosystem restoration include: Adaptive Management of Barriers in European Rivers (AMBER); Greater Thames Estuary Fish Migration Roadmap; FIThydro, Managing Aquatic Ecosystems and water Resources under multiple Stress (MARS); RECONNECT; KEEPFISH; Dam Removal Europe; FHARMOR; CrowdWater; SUDOANG

Barriers and opportunities	Public funding opportunities include: ➢ The Cohesion Fund: allocates € 63.4 billion to trans-European transportation and environmental projects. An example of the use of this funding source is the restoration if Parnü River Basin in Estonia. ➢ European Maritime and Fisheries Fund: supports projects that improve European fisheries and has been used extensively to support dam removal and fish passage projects. An example is the Ennerdale Mill Weir, removed in 2018 to restore river habitat for migratory fish and provide better protection for freshwater mussels. ➢ European Commission LIFE environment subprogram: funds nature conservation projects with a focus on the areas of biodiversity, habitats and species. An example is the Yecla de Yeltes Dam, Huebra River in Spain incudes a Natura 2000 site and was therefore eligible for LIFE funding. ➢ Local and National Governments: □ Municipalities and Water Authorities may have the resources and jurisdiction to purchase and remove obsolete dams. An example is the Hudiksvall Municipality in Sweden, that purchased and removed Sofieholm's hydroelectric power station. □ Project funding has been provided through national agencies including river basin authorities, national park authorities, environmental agencies, and marine and fisheries management. For example, in 2019, the Finnish Government announced they would allocate $18M EUR to increase funding for restoring migratory fish through barrier removal and restoration of breeding grounds. Private funding opportunities may include: Hydropower sector ➢ The hydropower sector can contribute to restoration by including restoration measures in the process for renovating and repowering existing largescale hydropower stations. ➢ Compensatory mitigation: In Europe, three general regulatory frameworks may readily support markets for requiring compensatory measures from existing hydropower plants: ➢ The EU Water Framework Directive may require enhanced river continuity or restoration of natural flows as a mitigation measure. These measures are usually required with the concessions/permits issued by authorities for water use by hydropower. Measures are to be funded by the hydropower sector as part of its operation. ➢ Biodiversity offsets ➢ Foundations and private donors: • Removing an obstacle from a river and returning it to its free-flowing state is something that can be seen as a direct legacy for donors. • Local, national, and global environmental and river conservation organizations: e.g. Angler's associations. An example is the intervention on the River Dove in England. ➢ Environmental markets: An environmental market is an exchange-based approach that uses market mechanisms to achieve environmental goals (regulatory and non-regulatory). In particular, markets for ecosystem services may be created associated to the restoration of a specific ecosystem. For example, a water utility may pay for the removal of an obsolete dam upstream of its intake, to improve source water quality and reduce treatment costs. Emerging governance includes a combination of approaches used in the US for reducing costs and increasing funding streams ➢ Life-cycle finance models: this promotes better understanding of the full life cycle cost of dams and other hydropower infrastructures, governments can make project financing and permitting contingent on a commitment to incorporate the true cost of the project, from cradle to grave, into the business model. This would include the project owner guaranteeing financial reserves for the removal. These reserves may be used to establish a revolving fund where the cost of removal of the newly financed or permitted project is used in the near-

	term to remove existing high priority dams that no longer serve their intended purpose. ➢ Climate adaptation and public safety: strategic barrier removal can be incorporated into local and national climate adaptation strategies to reduce the community risks of failure during a flood event or exacerbating critical water quality conditions during dry seasons or drought events. ➢ Municipal Vulnerability Preparedness (MVP) Program Action Grants. In the US there is a vulnerability and climate adaptation rapid planning process for municipalities that after completing the plan, are eligible to apply for Action Grants to implement their plans including: river ecological restoration and dam removal.

Case studies of restoration synergies or sector involvement	Foundations and private donors: ➢ The World Wide Fund for Nature (WWF) promotes a Crowd-sourced funding campaign on funding rivers restoration including barrier removal and wider ecosystem restoration projects in Europe ➢ A good practice can be found in Switzerland, where operators of existing Hydropower Plants which carry out mitigation measures on hydropeaking, bed load transport and fish migration, receive reimbursement of all costs of the measures by Swissgrid (national high voltage grid company) if mitigation is done by 2030. Compensatory mitigation: ➢ For example, in 2018 the Sihlpost Dam was removed in Sweden as mitigation to offset river impacts from a railway expansion. This usually occurs when required by environmental regulations. ➢ An example is the construction of a reproduction channel in Imatra, Finland. The "Imatra city brook" was constructed in 2014 next to the local hydropower plant to restore the lost habitat for the Brown trout stock salmo trutta ➢ For further examples on mechanisms of compensatory mitigation please see the US example (Box 1) Life-cycle finance models ➢ An example is the Dam and Seawall Repair or Removal Fund: A grant and loan program for projects that deliver community safety benefits and prioritizing projects with environmental co-benefits.

Box 1. United States example on compensatory mitigation policy for dam removals and ecosystem restoration

In the U.S. there are three well-established mechanisms for delivering compensatory mitigation that are recognized in existing compensatory mitigation policy:

1. Permittee-responsible mitigation: the permittee identifies and carries out the compensatory mitigation project and remains liable for the project's success in achieving the ecological outcomes identified in the project's objectives.
2. Banks and in-lieu fee mitigation, are often referred to as third party mitigation mechanisms because a party other than the permittee carries out the compensatory mitigation project, and permittees can purchase credits from those providers. When permittees purchase credits from banks or in-lieu fee programs, the liability for carrying out the project and for project success transfers to the third party. Mitigation banks are sponsored by private mitigation bankers, non-profit organizations, or government agencies that undertake a compensatory mitigation project to restore and protect aquatic resources in advance of and separate from any impact project. "Credits" are assigned to the compensatory mitigation project by the appropriate regulatory agency in proportion to the amount and type of uplift provided. These credits can then be sold to offset the In-lieu fee programs are sponsored by non-profit conservation organizations or government agencies. They are approved by the appropriate regulatory agency and allow permittees to make a payment to the program in-lieu of carrying out compensatory mitigation activities themselves. Once the program has collected sufficient funds, the program sponsor carries out compensatory mitigation projects approved by the regulatory agency. Both banks and in-lieu fee programs are generally preferred over permittee-responsible mitigation projects by regulators because they consolidate multiple, smaller impacts into larger, more ecologically significant restoration and protection projects. Banks are often preferred over in-lieu fee programs when they secure sites and complete restoration and protection activities in advance of project impacts, while in-lieu fee programs are generally associated with a lag time between when project impacts occur, and restoration and protection activities are carried out.
3. Example: credits for dam removal in the New England District, like other Corps districts around the country, has developed locally applicable guidance on compensatory mitigation that outlines how the agency will quantify impacts and offsets in the region.109 The New England method is designed to account for the complexity of the impacted system, degree to which area (acres/linear feet) and functions are replaced, likelihood of success for the mitigation to meet performance standards, and the temporal loss of certain ecosystem functions. The New England Guidelines include modules for different resource types, such as wetland and streams. Dam removal is included as a compensatory method in the Stream Module.

Source: Wilkinson, Jessica et al. 2017. Environmental Markets and Stream Barrier Removal: An Exploration of Opportunities to Restore Freshwater Connectivity Through Existing Mitigation Programs. The Nature Conservancy: Arlington, VA.

INSURANCE SECTOR

The European insurance sector has the capacity for substantial investments in freshwater related ecosystem restoration, holding assets of €10.4 trillion and planning for €150 billion sustainable investments. Long-term investments in restoration could diversify asset portfolios of insurance companies, while reducing future costs through ecosystem-based risk prevention, as weather and climate related payouts are rising dramatically throughout Europe (e.g. in Germany with a €12.5 billion record in 2021, 3.3 times the long-term average). Accordingly, awareness and interest in NBS, particularly wetlands preventing and mitigating hydrological extreme events, are growing. However, multiple barriers have impeded the uptake of insurance finance for ecosystems, which mainly relate to a lack of knowledge, the immaturity of markets and bankable businesses models, but also policy and institutional shortcomings.

Lead firms / leading European sector group	**European lead firms:** No single dominant lead firm, but the three largest insurer Axa (France), Allianz (Germany), and Generali (Italy) account together for 24% of total assets and 20% of total premium incomes. **Leading European sector group:** Insurance Europe (European insurance and reinsurance federation, comprising the national insurance associations and accounting for 95% of European premium incomes.)
Use of environment, natural resources, and ecosystem services:	As part of the finance industry, the insurance sector is not directly based on natural resources, nor have ecosystem services been widely considered a key factor for its operations. However, it is becoming increasingly clear that the current models to insure extreme weather related damages, which are based on historical data, depend on a certain degree of climatic stability for reliably predicting risk exposures, as well as on the resilience of natural systems to cope with extremes. On the other hand, any novel or rising environmental risk may offer new business opportunities for the insurance sector, given that sustainable solutions are developed to divert these risks in a profitable way.
Conflict with environmental interests:	The insurance sector is not directly at odds with environmental interest. Indirectly, insurance companies might have a conflict with restoration when their clients lose out from measures (e.g. reducing their profitability or spending power, or putting them out of business). Similarly, it has been noted that natural factors of ecosystems might cause damages to be paid for by insurers (e.g. biomass damaging infrastructure or obstructing traffic).

Sector position to restoration and conservation: • **emphasize barriers and opportunities** • **list financing tools** • **list gaps**	**Ecosystem restoration as NBS for the insurance sector:** • Climate change is increasing the uncertainty and extent of climate related risk exposure. This drives up premium prices, which may crowd out the client base, reducing income while payments for disaster recovery are growing. Hence, the shift from compensating to preventing/reducing damages is seen as a relevant component in adapting the insurance sector to climate change. • Where 'Ecosystem Based Disaster Risk Reduction' (Eco-Drr) is more cost effective than grey measures, Eco-Drr can be the basis for the 'Insurance Value of Ecosystems' (IVE). This could technically lower premium prices, although so far no insurance product has lowered prices based on Eco-Drr. • The insurance sector "is currently in a process of increasing its own awareness on NBS". In interviews with 61 sector representatives 44% of respondents were familiar and 28% were not familiar with Eco-Drr, while 30% were familiar and 70% were not familiar with IVE. Some insurance companies such as Swiss Re give the NBS topic considerable attention in their public outreach. • Hydrological extreme events (e.g. floods, cloudbursts) received (probably) most attention out of climate related insurance risks, while wetlands received (probably) most attention as an NBS to mitigate this risk (wetlands are the first ecosystems included in industry risk models; there is a growing body of literature on wetland IVE; etc.). **The sector may engage in restoration as:** • a provider of data and models (e.g. to identifying restoration priorities, to innovate NBS, to model the cost/benefit of upscaling, etc.), • as an advisor/partner on risk management, • as a provider of insurance products (insuring restoration projects or ecosystems as natural capital), • or by investing in restoration, diversifying asset portfolios with natural capital, which may enhance security in a time of perceived growing uncertainty. Further, the insurance sector is reported to increasingly favour long-term investments, which aligns with financing needs for restoration projects. **Opportunities and tools of the insurance sector to finance restoration measures and upscaling:** • Environmental impact bonds (EIB) have been cited as investment instruments for the insurance sector to engage in restoration. Investors are providing upfront capital to implementers restoring an ecosystem on behalf of beneficiaries (e.g. local communities, landowners, etc.), who repay the investor with RoI on the condition of the achievement of pre-defined outcomes (e.g. environmental targets). The conditionality is intended to align all stakeholder towards the anticipated outcome. EIBs originated in the US and are currently not employed in Europe. Though EIBs might offer an entry point to facilitate result based finance, concrete applications for the private insurance sector remain to be developed (see discussion below). • Commercial Loans; have been used to finance restorations. Current loan givers include the European Investment Bank's Natural Capital Finance Facility or Rewilding Europe Capital. These could finance restoration projects paid for by insurers. Alternatively, insurers could apply similar structures to provide loans for restoration. • Insurance pay-out requirements demand that pay-outs for insured damages are spent in a particular way (e.g. for specific risk reducing measures). This is currently no common practice, but coupled with the right policy the approach could channel funds in the direction of restoration activities. • Biodiversity / carbon offset and credit trading; could provide cost recovery and RoI. Habitat banking in the US (to offset habitat loss from new development), has facilitated substantial private equity investment from institutional investors for wetland restoration, reaching up to $181 million. Stacking ecosystem services could maximize payments for ecosystem services but requires special attention in accounting and for additionality requirements. • Blended Finance / Public Private Partnerships (PPP); may allow to share and regulate responsibilities, costs, risks, and benefits among public and private actors according to their respective strengths. While public agencies are more suited to mobilize enabling investments in public goods without RoI or at higher risk, private partners (e.g. insurers) might mobilise larger sums but require a lower risk level and/or private benefit (e.g. RoI). Other benefits might be complementary fields of expertise, networks, or experiences.

- Budgets on corporate social responsibility (CSR), might provide a source of private funding without expected RoI or cost recovery, but with the aim to benefit the public image of a private entity.
- Discounted premium prices for areas with implemented Eco-Drr measures (e.g. wetlands); could incentivize restoration projects.

Barriers for the sector to invest in restoration:

- IVEs are likely to represent non-excludable goods. Insurance companies are often not geographically specialized, posing a problem of freeriding and asking for mechanisms to organize collective action. For example, a single private insurer X might see no incentive to reduce the flood risk for a flood-prone area where properties are not only insured by X but also by X's competitors, since this would benefit the competition (through reduced risk) on expense of X. A third party or an enforcer (e.g. a collective of all insurers, the state the state) could coerce all respective insurers to contribute to the extent that they benefit from the risk reduction.
- Lack of bankable projects for asset investments. Bankable projects are financially viable as they have (a combination of) characteristics such as: "cashflow generating activities, sufficient collateral, a high probability of success, a clear exit strategy, an acceptable risk-adjusted rate of return, a clear proof of concept and proven track record".
- Lack of robust evidence on the efficacy of ecosystems as protective measures poses a major barrier for insurance investments in Eco-Drr.
- Limited of knowledge regarding NBS/Eco-Drr/IVE and their implementation.
- Lack of risk models that incorporate ecosystems. Ideally, risk models used by insurance companies to assess environmental risks would include the most sophisticated data and models from environmental research on the local hydrology and ecology. Most risk model, however, are based on historic climate data and can currently not incorporate more complex environmental dynamics.
- Natural assets lack the liquidity required under the Solvency II Directive. This legislation secures that insurance companies are able to cash out assets to pay for insured damages. A restoration project might not be liquefiable in the short-term.
- Insurers avoid high risk investments, such as restorations projects. Restoration projects bear high risk due to lack of investment track record, insecure/undefined collateral that could provide a security if the investment fails (land could be sold off if it is owned by the debtor, but the additional value from the restoration would most likely be lost), high degree of complexity and uncertainty from ecological, economic, social and climatic processes.

Case studies of restoration synergies or sector involvement:	**See example of EIB for wetland restoration to reduce disaster risk:** https://www.quantifiedventures.com/wetlands-environmental-impact-bond **See example of private equity investment in wetland restoration through habitat banking:** https://ecosystempartners.com/private-equity-investment-buoys-restoration-industry/ **See example of private commercial loans for wetland restoration:** https://rewildingeurope.com/news/finlands-snowchange-purchases-wetland-with-its-first-rewilding-europe-capital-loan/

INLAND NAVIGATION

The inland navigation sector is linked to all sectors and industries depending on inland transportation, accounting for 6-7% of freight transport within Europe, and comprising roughly 9.700 companies with 40.700 employees in cargo and passenger transport combined. Acknowledging conflicts with environmental interests, the sector actively seeks stakeholder engagement and aims to develop win-win solutions, which maximize environmental benefits in future infrastructure development. Synergies between the sector and restoration are most likely as infrastructure development involving restoration measures, targeting physical river structures (e.g. riverbed, benches, etc.). However, Inland waterway infrastructure is publicly funded, which reduces incentives of single companies to invest directly in restoration, especially since the sector does not seem to depend on healthy ecosystems. Nonetheless, the sector could support restoration finance either through enabling investment, collectively through umbrella organizations, or in form of offsetting requirements.

Lead firms / leading European sector group	The Rhine countries account for 84% of inland water transport in Europe + Switzerland, with the largest shares accounted for by Germany (34%), Netherlands (34%), and leaving the largest remaining share for the Danube navigation. Leading Sector groups: Inland Navigation Europe (INE); Central Commission for the Navigation of the Rhine (CCNR).
Use of environment, natural resources, and ecosystem services:	Inland navigation prefers stabilized, single and uniform river channels. Basic needs include: • Minimum fairway dimensions (depth and width) designed for individual river sections with a view to continuity of navigation conditions, including curve radius. • Construction and maintenance including low-water regulation by hydraulic structures (e.g. groynes), dredging, and refilling of material. • Infrastructure, taking into account relevant physical and other factors (e.g. proximity to market and connectivity to the wider transport network).
Conflict with environmental interests:	• Navigation requirements (see above) can result in conditions lacking habitat value, such as natural in-stream structures with gentle gradients, or connectivity with the adjacent floodplains. • Waves from ships can disturb the reproduction habitats of fish, benthic invertebrates, and other biota as well as de-root aquatic plants. • Unnatural suspension of fine sediments caused by ship engines can lead to reduced light for plant and algae growth. • Channel construction for the improvement of navigation and/or flood control can result in locally increased bed load transport and consequent downstream output of bed material. • Bilge water and ship waste can result in water pollution.

Sector position to restoration and conservation; Barriers and Opportunities	**Sector Position on Restoration and Conservation:** • A 2007 joint statement, facilitated by The International Commission for the Protection of the Danube River (ICDPR), recognizes the WFD's requirement for the 'good ecological status' of European rivers and embraces the following basic needs for the conservation of the ecological integrity of the Danube River: ➢ Protected/conserved natural or ecologically high-value riverine landscapes, river sections and aquatic populations, ➢ The restoration of modified/impacted river sections and their adjacent landscapes. ➢ A dynamic and type-specific channel and floodplain environment (regarding in-stream structures, shorelines, side arms and floodplains) supporting a dynamic equilibrium and adequate connectivity conditions. ➢ Undisturbed longitudinal and lateral migration of all fish species and other water-related species to ensure their natural and self-sustaining development. ➢ A balanced sediment budget. • The World Association of Waterborne Transport Infrastructure (PIANC) introduced the 'Working with Nature'-approach (WwN) in 2008, promoting win-win solutions for environmental stakeholders and the transport sector by focusing on project objectives in an ecosystem context. The approach aims to maximize environmental benefits, rather than assessing consequences of a predefined project to minimize its environmental harm. Practically, this includes the creation of wetlands, aquatic habitats, riverbank renaturalization, or the connection of river channels in infrastructure developments. Practical guidance comprises four basic steps: ➢ Establish project needs and objectives. ➢ Understand the environment. ➢ Make meaningful use of stakeholder engagement and identify win-win options. ➢ Prepare project proposals/design to benefit navigation and nature. • A 2010 manual by PLATINA provides extensive guidance on 'good practice in sustainable waterway planning', discussing restoration as a priority and key consideration, while providing examples of good practice. **Opportunities and barriers for the sector to engage in restoration finance:** • It appear that inland navigation infrastructure is funded as a public good by the respective national ministries and the EU. Connecting Europe Facility 2 (CEF2) "is the EU funding instrument to achieve trans-European networks" with a budget of €25.81 billion, which is co-financing waterways (studies, works, bottlenecks, cross-border, Regional Innovation Scheme) of up to 50% of costs, or 85% for cohesion countries. • The sector does not seem to depend on functional ecosystems. Though, win-win outcomes can be created by thoughtful project design, no essential and directly shared interests between restoration and navigation is easily identifiable. One exception could be tourism-based passenger transport, which benefits from a pleasant landscape and wildlife. • In light of the above two points, it might be difficult to mobilize single private companies to contribute financially to restoration. Hence, asset investments with RoI, might be less relevant for this sector. • Enabling investment by the sector could be relevant, and is already happening to some extent through umbrella organizations (stakeholder engagements, crafting of guidelines, policy recommendations, lobby work, etc.). The sector's network, knowledge, experience, etc. are potential enabling assets. For example, the sector could promote a mandatory percentage of all public project budget to fund restoration projects. Given the large budgets, this could yield substantial coverage. • Membership in an umbrella organization could require a fee (fixed, or relative to transport volumes/economic turnover), which is specifically used for restoration work with or without RoI. A fund with fix endowments (stocks/shares of the companies, other assets) could provide a stable and independent source of finance. This could be part of the sustainability profile that the sector is actively crafting. Umbrella organizations could also finance/enable the upscaling of restoration across the river system that they represent, or certain specialized elements thereof (usually physical elements of the river, e.g. river bank works, sediment work, etc.). • When damages to ecosystems cannot be fully avoided or mitigated, then the sector could pay for offsetting restoration projects. This could happen through established market places or through contractors.

Case studies of restoration synergies or sector involvement:	Restoration of floodplains at the Rhine river - Waal branch near Nijmegen, NL: • 351 million euro, mainly provided through the NL national budget • Ecological benefits: natural floods, refugial habitats, nutrient transport, sedimentation, habitat diversity and quality. • Navigation benefits: lowered water level during floods, reduced flow velocity, decreased shear stress at high flow, decreased sediment transport at high flow. Seine Scheldt Flanders: • 420 million euro, fully funded by the European Commission • Ecological benefits: river branch reconnection, fish passages, river bank naturalization, construction of wetlands • Navigation benefit: improved waterway, shorter way, higher capacity, etc.

PEATLANDS, INCLUDING PEATLAND EXTRACTION

Peatlands play a key role as carbon storage ecosystems, biodiversity champions and are important for climate change adaptation. At the international sphere there is a recognition of the importance of peatland restoration in initiatives such as UNFCCC, COP-26 and the UN Decade on Ecosystem Restoration. Barriers remain to achieving restoration goals and are related to high population densities and pressures from competing land-use especially for agricultural purposes, difficulties in quantifying ecological benefits arising from peatland restoration, costs of measures and lack of harmonized policies and standards. In terms of financing opportunities, public funding plays a major role in current restoration efforts, nonetheless, there is a growing interest in promoting private financing of peatland restoration through market-based payment for ecosystem services and mechanisms to promote the productive use of peatlands.

Ecosystem characteristics	Peatland ecosystems are in danger: • 50% of the peatlands destroyed worldwide have been lost to agriculture, 30% to forestry, 10% to peat extraction for fuel and horticultural purposes, and 10% to infrastructure development. Across Europe alone, over 100,000 km2 of peatland have been lost (mainly in the last 50 years) and the remaining 500,000 km2 are vulnerable • Most of the pressures on peat soils that are responsible for their declining state are associated with human interventions, most notably land drainage for agriculture. Healthy and restored peatlands bring along several benefits such as: • Contribution to long-term climate regulation and regional cooling effects • Help mitigate biodiversity loss by improving the quality species' habitats. • Improve local water quality through the removal of damaging nutrients from inflowing waters and act as a natural buffer against droughts and flooding Peatland importance have been recognized in the international agenda: • recognition of peatland ecosystems services has led to their protection by the Ramsar Convention, the Convention on Biodiversity, EU directives

Barriers for peatland restoration	• In the EU context, agricultural land use has currently stronger incentives compared to the peatland restoration. ➢ Current Europe's Common Agricultural Policy (CAP) potentially damage peatlands by supporting farmers with significant subsidies for agricultural activities that require peatlands to be drained. ➢ There is a need of rural development subsidies to support sustainable peatland practices with conditional payments for restoration, maintenance, and wet farming • There are barriers related to quantifying ecological benefits arising from peatland restoration in economic terms: ➢ Many benefits of peatland restoration are public goods arising as externalities which are difficult to convert into financial returns to private investors. ➢ Measuring benefits of restoration entails long periods of time that can potentially an obstacle to attract investments and monitoring processes e.g. in cases where goals are specific and relate to aspects of peatland functioning, the time required to measure success could be around 15–20 years. • Lack of accessibility to available data and monitoring systems that contain information of a range of ecosystem functions to evaluate restoration trajectories and inform future *management and investment.* • There are potential barriers to implement restoration related with the cost of interventions ➢ Cost varies depending on the extent of degradation of the ecosystem. A highly degraded ecosystem usually requires bigger investments . ➢ There is high cost related to managing complex drivers of degradation in large scale restoration project. When they are at a local scale and are easy to identify and rectify, the cost may be reduced. In contrast, where degradation is due to a multitude of factors operating at a regional or catchment scale, the cost may be high and therefore there will be financial barriers. ➢ Restoration of peatlands can require a large upfront capital investment. As well as direct repayment, the return on the investment should come from benefits arising from ecosystem services and outweigh the loss of services provided by the damaged peatland • Restoration activities in Western Europe, have been mostly undertaken in protected areas. But larger areas of non-protected peatlands are still being extracted for agriculture and forestry. • Barriers associated with the usability of potential funding mechanisms: ➢ Payment for ecosystem services in general face challenges related to demonstrating sustained financial viability, establishing credibility with effective verification and accounting, balancing trade-offs to achieve and general acceptability, and to establish *and maintain social license to operate:* ➢ Lack of centralized standards at EU level for GHG balance calculations can make internationally comparable carbon credit schemes challenging to implement.

Opportunities for Financing peatland restoration	1. Opportunities in Public funding: • EU grants: The European Commission has funded most of the restored wetlands across Europe, mainly in form of grants. Between 1993 and 2015, the EU-LIFE nature programme invested 167.6M € in 80 projects, restoring >913 km2 of peatland habitats in Western European, mostly in protected Natura 2000 sites. • National funding: ➢ National governments may fund projects by private actors or local/regional governments, which support strategic national objectives (e.g. biodiversity conservation). ➢ Agri-environment schemes across Europe provide a major avenue to channel public funding into national peatland restoration. The schemes could be adapted to derive a higher return of ecosystem services, by spatially targeting the services most valued by society and providing incentives for cross-boundary management of certain ecosystem services at catchment or wider spatial scales 2. Opportunities for private funding: Private funding may take the form of voluntary contributions, such as donations, crowdfunding, or private grants (e.g., from companies or NGOs), which do not anticipate private economic returns, at least not directly. However, private economic activities are generally and most often based on expected returns on investment (RoI). A variety of instruments may enable the generation of RoI from peatland restoration: 1. Market-based payment for ecosystem services: • Pay solely for carbon and climate mitigation benefits ➢ Carbon credits: It is possible to reduce GHG emissions from degraded peatlands by rewetting and restoring them. Each tonne verified as saved can be offered for sale as a carbon credit. Carbon credits can represent an important potential income for landowners and farmers, and their implementation can fund restoration and sustainable peatland management. ➢ An example a carbon offsetting approach that makes it possible to assess levels of CO2 emissions is the max.moor carbon offsetting approach used in Switzerland ➢ The UK Peatland Code is an example of a voluntary certification standard for UK peatland projects wishing to seek additional private funding via the voluntary carbon market. ➢ Eco credits: credit system for ecosystem services. Ecosystem services, such as water purification, water storage, and water retention can potentially be combined with Carbon credits to create Eco credits. • Pay for a wider range of ecosystem services derived from restoration: peat extraction companies, water companies, horticulture companies, eco-tourism/recreation (See Box 1). ➢ An example of a project supporting this is Revere, a nature restoration facility delivered through a partnership between global impact firm Palladium and UK National Parks, that supports the development of the exploratory business cases for peatland restoration 2. Productive use of peatlands • Paludiculture: the productive use of wet and rewetted peatlands while preserving the peat soil and thereby minimizing nutrient runoff, CO2 emissions and subsidence Peatland restoration techniques and tools: Site planning, restore hydrology, remove invasive vegetation, reintroduce peatland vegetations and paludiculture. the products of paludiculture can be processed to use as insulation and construction materials, growing media and bio-refinery products as well as for livestock fodder and for fuel There are projects such as DESIRE promoting the establishment of peat-preserving cultivation practices as the one in the Neman River catchment 3. Other Financing instruments and approaches: ➢ Loans: supported by institutions such as the European Investment Bank allow financing peatland restoration trough commercial. An example of this is the loan from Rewilding Europe Capital (REC) that enabled Finland-based Snowchange Cooperative to purchase the 110-hectare Linnunsuo wetland area

	➢ Opportunities for co-*governance* to promote collapse of different funding sources: Collaborative approaches such as funds and cooperation between farmers and cities stand- up as innovative ways for funding restoration efforts (See Box 2)

Organizations/institutions that lead the work on the topic	• The International Peatland Society (IPS) is a non-governmental, non-profit multidisciplinary organization dealing with peatlands and peat. The IPS has three Commissions, on environmental, economic and social aspects of peatlands. They are supported by expert and project groups. • Global Peatlands Initiative UN Environment Programme • EU projects: five EU funded transnational projects – Carbon Connects, Care-Peat, DESIRE, LIFE Peat Restore, and CANAPE – across Northwest Europe, the North Sea region, and the Baltic Sea Region have been operating under the INTERREG and LIFE funding program

WATER SECTOR

Comprising tens of thousands of entities, the European water sector consists of all private and public companies providing one or more of the water services that are widely enjoyed across Europe: drinking water supply, waste water management and storm water management. The governance structure of water management differs across countries (and often across municipalities), but water companies operate mostly as local monopolies. The sector actively engages in ecological restoration, mainly through various applications of Green Infrastructure (GI) and/or Nature-based Solutions (NbS), and aiming at shared benefits for the sector and the environment. The sector might finance ecosystem restoration through various options, such as earmarking shares of water charges or water tariffs, providing access to external finance such as green loans, by providing assets (e.g. land for restoration, human resources), or in partnership with public funding or with stakeholders (e.g. civil sector).

Lead firms / leading European sector group	Some umbrella organizations express shared positions, which might be indicative of general trends, while other private companies enjoy notable market power: ➢ **AquaPublica Europea** "is the European Association of Public Water Operators. It unites publicly owned water and sanitation services and other stakeholders working to promote public water management at both European and international level". ➢ **EurEau** "is the European Federation of National Associations of Water Services. [They] represent national drinking and waste water service providers from 29 countries, from both the private and the public sectors". ➢ **Water Europe (WE)** "is the voice and promoter of water-related innovation and RTD in Europe". They "are a membership-based multistakeholder organisation representing over 200 members from academia, industry, technology providers, water users, water service providers, civil society, and public authorities". ➢ **Veolia and Suez**, are the strongest private players on the European market for water services, and are currently underway to be merged, which could increase their combined market power.
Use of environment, natural resources, and ecosystem services	The water sector provides services that both depend on and directly affect aquatic ecosystems, including waste water management, drinking water supply, and rain water management. As such, the sector requires a reliable availability, quality, and replenishment of freshwater resources, which are bound to the hydrological cycle, climatic conditions, and ecosystem services, such as the storage of freshwater in lakes, rivers and groundwater, filtration of pollutants by aquatic ecosystems, and flow regulation in floodplains and wetlands. Climate change puts pressures on the water sector as it increases the frequency of extreme hydrological events, such as drought, flooding, and storms with intense rainfall.
Conflict with environmental interests	Water sector activities might pose threats to the environment, when environmental risks are not controlled for. Risks might include: ➢ Over-extraction of surface- and groundwater; ➢ Inefficient allocation among water uses, including ecological flows ➢ Potential pollution from sewer systems and wastewater treatment plants through insufficient treatment of waste water (e.g. lack of capacities, inadequate technologies) or caused by accidents (e.g. spills, over-flows). ➢ Adverse effects from the development of grey infrastructure

Sector position to restoration and conservation; Barriers and opportunities	**Sector position on environmental issues and restoration:** Recognizing environmental pressures for the water sector and society at large, the sector (as represented by interest groups) embraces policies such as the WFD, European Green Deal, SDGs, or the European Biodiversity Strategy for 2030, and promotes action to act upon issues such as water stress, flooding, climate change, loss of biodiversity, pollution, etc. Generally, the sector itself responds to these societal challenges by implementing nature-based solutions (NbS) and Green Infrastructure (GI), aiming at benefits shared by sectoral stakeholders and the environment. See for example: ➢ Water Europe points out "shared challenges for water and biodiversity conservation", and • stresses the importance of river and wetland restoration (as habitats, as carbon sinks, for water filtering and nutrient cycling, and mitigating drought and flood), • proposes Water-oriented Living Labs (WoLLs): "cross-sectoral ecosystems that provide a 'field lab' to develop, test, and validate a combination of new technologies, business models and policies [...] to explore synergies between industry, agriculture, natural habitats and society [...]", and • promotes GI (with potential biodiversity benefits). ➢ Aqua Publica Europea states that "Land-use decisions and investments and development in 'green infrastructure' and 'nature-based solutions' are opportunities to bring together water and nature [...]" **Opportunities to engage in restoration:** ➢ NBS/GI applications for water management are diverse and can include: • rain gardens for urban stormwater regulation; • wetlands filtering contaminated water; • lakes storing water resources; • floodplains absorbing excess water discharge; • watersheds recharging groundwater; • rivers facilitating and regulating water flow; etc. ➢ Alternatively, the water sector may also engage with the agricultural sector to reduce the negative impacts that agriculture can have on water resources. The water sector might exert influence by directly investing into agriculture (e.g. buying farmland) or by working with agricultural stakeholders (e.g. payment for ecosystem services) to promote improved agricultural practices that • reduce fertilizer run-off; • increase water efficiency; • improve soil conditions that are favorable for water resources. ➢ Consequently, sector engagement in restoration and projects can take multiple forms: • Geographic context: urban / rural / coastal / etc. • Stakeholder involved: private / public / PPP / agricultural stakeholder (farmers, buyers) • Targeted ecosystems: wetlands / floodplains / rivers OR agriculture • NbS/Ecosystem Service (see above): water provision / water regulating (filtering, flow, etc.) / other • Financial contribution (see below): assets (e.g. land for restoration) / providing direct funding / providing access to external finance / other in-kind contributions (e.g. coordination, expertise, in-kind resources). **Entry points to support finance and funding:** ➢ The sector acknowledges substantial investment needs to modernize its activities and infrastructure, particularly in the face of climate change, population pressures, and growing water demands (e.g. for agriculture, industry, etc.). Strategic and innovative finance solutions are required to raise funds and meet investment needs. Such solutions may also finance NbS or GI: • External finance (from outside the company): External (commercial) finance may fund GI investments, where these are preferred over grey infrastructure for higher cost-effectiveness or for additional (environmental) benefits. Relevant instruments could include green loans or green bonds, which exclusively finance 'green projects' that generate environmental benefits, while maintaining the basic characteristics of conventional loans or bonds. What constitutes a green project is not concretely or legally defined. However, the European Commission has been establishing guidelines and

	definitions based on the Sustainable Finance Taxonomy Regulation, with the aim to standardize and upscale green finance. • Internal finance (from within the company): Following the WFD principle of full cost-recovery, restoration could theoretically be funded through the share of revenues collected via water pricing mechanisms used by water service providers, as far as restoration measures can count as investments in the availability, replenishment, and quality of freshwater. Alternatively, the disposal of assets can provide financial means to invest in restoration. • Blended finance (internal/external private + public funding): Public funding may leverage GI to correct for market failure, where such measures are less cost-effective (or riskier) than grey infrastructure but provide public or shared environmental benefits. Relevant instruments could include subsidies, tax rebates, grants, or guarantees for loans.

Case studies of restoration synergies or sector involvement	**Green bond finances green investments of private water company Anglian Water Services Limited** ➢ Anglian Water Services Limited, a private water company, financed infrastructure projects through self-labelled 'green bonds' and claims biodiversity and ecosystem benefits. ➢ Financed projects appear as improved grey infrastructure with reduced environmental impact, rather than GI. But similar bond structures could finance private NbS/GI investments ➢ Anglian Water Services Limited (2020) Green Bond Impact Report 2020. Available here: https://www.awg.com/siteassets/investors/anglian-water-services---tc/green-bond-report-2020.pdf **Sovereign climate bonds finances NbS for the state of the Netherlands: An AAA-rated €5.98 billion climate bond, with a maturity of 20 years** ➢ The €5.98 billion climate bond was issued in 2019 by the Dutch State Treasury Agency as the first of its kind to fund nature-based solutions, including adaptation and mitigation measures on coastal and river ecosystems to combat increasing climate risks, such as floods and storms. Only 'Eligible Green Expenditures' are funded, which are defined by the EU Taxonomy Regulation. ➢ The funds generated through government bonds are not directly accessible to project developers, but developers can benefit from such funds by offering competitive solutions in line with the bond's purpose and its requirements. ➢ Mauroner A. (2019) Netherlands Invests €5.98 Billion in Ecosystems [online accessed 06.04.2022]. Available here. https://www.connect4climate.org/article/netherlands-invests-%E2%82%AC598-billion-ecosystems ➢ Dutch State Treasury Agency (2019) State of the Netherlands Green Bond Framework. Available here: https://english.dsta.nl/subjects/g/green-bonds/documents/publication/2019/04/08/green-bond-framework **Internal finance and partnership between United Utilities & RSPB restore watershed landscape and operate farms in UK** ➢ In a long-term partnership with the conservation NGO RSPB, United Utilities (UU), a private utility company from the UK, voluntarily invests in the ecological restoration, conservation, and management of its Haweswater watershed estate, UK, to improve the flow, the availability, and the quality of raw drinking water. Besides offering the land for these activities, UU funds various single expenditures, e.g. £150,000 for a native tree- and wildflower nursery. ➢ Specific measures included the restoration of the watercourse of the Swindale Beck River, which slows water flow, reduces flooding, improves irrigation, and provides wildlife habitats. The blocking of artificial drains and restoring of peat bogs increased carbon stocks, recovered habitats, raised water storage, and improves water quality. The planting of >100.000 trees reduced soil erosion, improves water quality, and creates new habitats. ➢ The initiatives also includes purchase of several farms on the land. The farms are operated in partnership to explore synergies between ecological benefits, agriculture, and water resources. ➢ IUCN (2021) Haweswater - Demonstrating how upland farming, biodiversity recovery and water services work together to provide benefits for people, nature and the economy. Available here: https://www.iucn.org/news/ecosystem-management/202111/haweswater-demonstrating-how-upland-farming-biodiversity-recovery-and-water-services-work-together-provide-benefits-people-nature-and-economy **Non-commercial loan from revolving fund finances wetland as NbS, with repayments through household fees** ➢ Port Townsend, US, bought the 2,6 ha Winona Wetlands for the purpose of its preservation as a biodiversity habitat and its function for stormwater control and water purification. The $400,000 purchase was financed by a below market-rate loan from the Clean Water State Revolving Fund (CWSRF) by the United States Environmental Protection Agency (EPA). The loan is repaid with a portion of the $5/month storm water utility fee paid by each household over a period of 5 years.

- The case exemplifies how a loan finances upfront NbS for water management, and how that loan is repaid through charges. Similarly, repayment could be based on water price revenues.
- EPA (2001) Protecting Wetlands with the CWSRF - Fact sheet on how the CWSRF can be used to fund restoration projects. Available here: https://19january2021snapshot.epa.gov/wetlands/clean-water-state-revolving-fund-srf-and-wetlands-fact-sheet-and-projects_.html
- EPA (2001) CWSRF Funded Wetlands Projects - Case studies on wetlands projects using CWSRF. Available here: https://www.epa.gov/system/files/documents/2025-01/cwsrf-dwsrf-resource-guide-for-wetlands-appli.pdf

Water tariffs are financing the public implementation of the Water Framework Directive (WFD) in Schleswig-Holstein, Germany

- To implement the WFD and achieve its targets, the German federal state of Schleswig-Holstein finances different ecosystem restoration activities (e.g. creating floodplains, rewetting of marches, river course restoration, etc.) through tariffs for groundwater (0,02-0,11€/m³), surface water (0,0077/m³), and waste water.
- The approach aims for the 'polluter-pays-principle'.
- 100% of the revenues for wastewater tariffs are invested in the conservation and improvement of water quality. In 2006, for example, 175.000€ (about 1%) were spent on re-wetting marches.
- Grüne Liga e.V. (2009) Verwendung der Wasserabgaben in Schleswig-Holstein. Available here: http://www.wrrl-info.de/docs/wrrl_steckbrief_wasserabgaben_sh.pdf

Blended finance for the restoration of the Aussonnelle river in France

- As part of the broader strategy 'Défi Aussonnelle' to restore the ecological status of the river Aussonnelle, France, the connectivity of the river is improved, which secures minimum water replenishment and discharge throughout the year.
- The project combines green infrastructure with grey infrastructure (i.e. improved waste water treatment).
- The public water company RESEAU31 finances 20% of the 1,5 million investment. The remaining is funded by Departmental Council of Haute- Garonne (30%), which is the local administrative authority, and the Adour Garonne Water Agency (50%), which is responsible for the management of the Adour-Garonne river basin.
- RESEAU31 (2020) Work is underway to allow the replenishment of the Aussonnelle watercourse at low water level 2021 [Online, accessed 07.04.2022]. Available here: https://www-reseau31-fr.translate.goog/des-travaux-sont-en-cours-pour-permettre-la-realimentation-du-cours-de-leau-de-laussonnelle-a-letiage-2021/?_x_tr_sl=fr&_x_tr_tl=en&_x_tr_hl=en&_x_tr_pto=sc

Green Loans by European Investment Bank finance private-public cooperative for Emscher river restoration

- Founded in 1899, the Emschergenossenschaft (EG) is a cooperative of 19 municipal authorities, 9 private mining companies, and 170 commercial and infrastructure companies, which finances measures for flood protection and wastewater management in the Emscher catchment, Germany.
- Between 2011 and 2020, the European Investment Bank issued four loans to the EG totaling €1,850 million for the The New Emscher Project, which was launched in 2006 to improve water quality of the Emscher River in Germany. The loans have a maturity of 45 years at a fixed interest rate and are repaid by the EG. The funding of the EG is based on the financial contributions of its members.
- 15% of the project costs has been invested in the restoration of 345 km of restored rivers and creeks. 80% was spent on improving wastewater collection & treatment, and 5% was spent on flood prevention.
- Beroš M (2021) European Investment Bank's experience in financing nature based solutions for climate adaptation in the water sector. Available here: https://www.aquapublica.eu/sites/default/files/event/file/2021-11/10.%20Beros_2021_11_09_Beros_EIB_Financing%20of%20NBS%20FOR%20climate%20adaptation%20in%20water%20sector.pdf

- EIB (2011) Germany: EIB finances the rehabilitation of Emscher river [online, accessed 12.04.2022]. Available here: https://www.eib.org/en/press/all/2011-115-emscher-umbau-eib-finanziert-modernstes-abwassersystem-der-welt-mit-450-mio-euro
- EIB (2013) Germany: EUR 450 million for Emscher rehabilitation project [online, accessed 12.04.2022]. Available here: https://www.eib.org/en/press/all/2013-205-450-mio-euro-fur-den-emscher-umbau-eib-unterzeichnet-weiteren-darlehensvertrag-mit-emschergenossenschaft
- EIB (2017) Germany: EUR 450 million for Emscher rehabilitation project [online, accessed 12.04.2022]. Available here: https://www.eib.org/en/press/all/2017-199-450-millionen-euro-eu-bank-stellt-weiteren-kredit-fur-emscher-umbau-bereit
- EIB (2017) Germany: EIB grants additional loan for rehabilitation of the River Emscher [online, accessed 12.04.2022]. Available here: https://www.eib.org/en/press/all/2020-399-eib-grants-additional-loan-for-rehabilitation-of-the-river-emscher

Waste water treatment plant invests in land-use, incl. agriculture and wetland

- MM, the largest treatment plant in Milan, Italy, created a 100ha agricultural park with forests and wetlands to compensate and mitigate environmental impacts of the treatment plants.
  Aqua Publica Europea (2019) The Public Water Services of the Future. 10 Year Report. Available here: https://www.aquapublica.eu/sites/default/files/article/file/Aqua%20Publica%20Europea_The%20Public%20Water%20Services%20of%20the%20Future_0.pdf

Other examples:
https://www.sciencedirect.com/science/article/pii/B9780128198711000087#!
https://connectingnature.eu/city-case-studies

Annex 3 – The MERLIN Financing Workflow

This document was prepared in the context of the MERLIN project to accompany the case study partners in charge of drafting the Regional Scalability Plans in setting out options to diversify funding sources for the planned restoration measures. Outside MERLIN, this document is also intended for actors traditionally driving/leading the implementation of restoration projects (e.g. environmental NGOs and public sector agencies) as well as other actors that may become engaged in restoration action as a result of mainstreaming and/or upscaling efforts prompted by the recent policy developments across Europe (e.g. ranging from water companies to agri-businesses to local interest groups).

This Workflow is presented in the MERLIN Academy where more material (videos, further reading, etc.) can be found.

The MERLIN financing workflow is structured along four building blocks, called "pillars". These pillars are not necessarily consecutive, but they build on each other and should be seen as iterative (see Figure 1). For instance, while an initial project plan is laid out in Pillar A, the analysis of costs and benefits (Pillar B) may lead to redefining the necessary upscaling measures. Similarly, the cash flow analysis and initial review of applicable financial instruments (Pillar D) may call for rearranging the funding options considered originally in Pillar C. Finally, a restoration manager would benefit to identify early on the business opportunities attached to a restoration project (Pillar B), as this is essential supportive information for attracting interest from profit-seeking private sector actors.

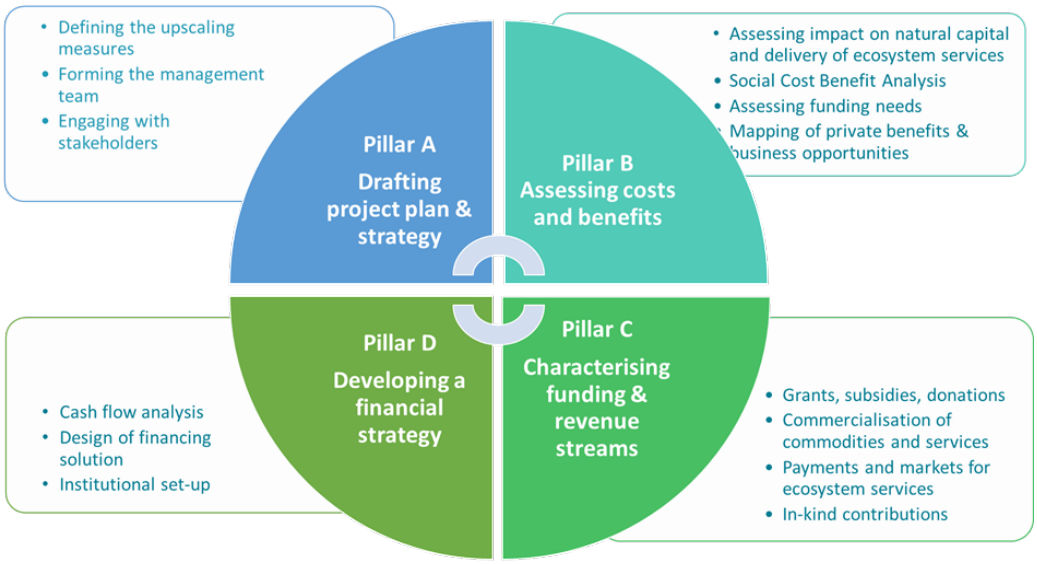


Figure 1 – Overview of key building blocks or "pillars" of the MERLIN financing workflow

When following the Pillars of the workflow, it is fundamental to consider that uncertainties are embedded in the implementation of any project or strategy. Learning will occur and new knowledge will question past decisions and open new opportunities. Financial planning should thus be seen as an adaptive process with feedback loops and multiple cycles of assessment and implementation.

The Pillars of the workflow were defined based on previous theoretical frameworks and practical experience on financing nature restoration[1][2][3][4][5][6][7]. They build on the following assumptions:

1. That in most cases, the restoration manager's interest in upscaling will be preceded by knowledge of and/or experience with specific restoration measures.
2. That a core team of experts and other stakeholders will be engaged in the project. These persons would initiate the discussions and planning and thus might benefit from using this workflow.

The Pillars have been adapted to be practical and concrete actions for restoration managers to consider and undertake. They are presented shortly in the following sections.

1 Altamirano, M.A., de Rijke, H., Basco Carrera, L., Arellano Jaimerena, B. (2021). Handbook for the Implementation of Nature-based Solutions for Water Security: guidelines for designing an implementation and financing arrangement, DELIVERABLE 7.3: EU Horizon 2020 NAIAD Project, Grant Agreement N°730497 Dissemination

2 NatureScot (undated) Guidance on nature-based finance opportunities for land managers in Scotland

3 Shames, Seth, Margot Hill Clarvis, and Gabrielle Kissinger (2014) "Financing Strategies for Integrated Landscape Investment: Synthesis Report," in Financing Strategies for Integrated Landscape Investment. Seth Shames, ed. Washington, DC: EcoAgriculture Partners, on behalf of the Landscapes for People, Food and Nature Initiative.

4 Earth Security (2021) The Blended Finance Playbook for Nature-based Solutions.

5 Finance Earth (2021) A Market Review of Nature-based Solutions – An emerging institutional asset class.

6 Faruqi, S., Florence, L. (2017) Attracting Private Investment to Landscape Restoration: A Roadmap

7 Credit Suisse, WWF, McKinsey&Company (2014) Conservation Finance. Moving beyond donor funding toward an investor-driven approach

Drafting a clear project plan and strategy and building the right team (Pillar A)

Pillar A is about laying the managerial foundations of the restoration upscaling project.

It entails the definition of a first set of restoration measures to be evaluated and the formation of a team holding the full range of competences necessary to ensure a sound planning and effective execution of the project. It also points to the relevance of establishing a stakeholder engagement process.

Setting a clear list of measures and outlining their impact

At the start of the process, it is crucial that the restoration team formulates clearly what the actions of the upscaling project will entail and what concrete challenges they are responding to. This should incorporate both technical descriptions of the individual tasks –including administrative, physical and research work (e.g. planning, construction, monitoring)– and an indicative overview of how they are expected to interconnect and function at the system level. This will help to document the project from an operational perspective while framing and justifying it as a response to the relevant societal challenges in the river basin.

Once the measures and tasks have been laid out, their short-, medium- and long-term impact should be assessed in relation to concrete needs in the river basin. This should include a transparent assessment of NbS and alternative engineering interventions. Most restoration projects typically carry out several impact assessments during their design phase, establishing an environmental, socio-economic and institutional baseline and outlining the impact of different restoration scenarios over time. Additionally, the main risks should be identified together with possible mitigation actions.

Donors, lenders and investors may request impact and risk information when deciding whether to support the project. These entities will consider the reliability of the assessments and their rightful scientific justification to be assured that the project is sustainable, viable and can realistically achieve its expected impacts. Thus, the assessments should be as transparent as possible, scientifically-sound and, ideally, carried out by an independent third party. A lack –or inadequate coverage– of these items would most probably result in a negative evaluation by the potential funding parties.

This initial information will feed into the assessment of Pillar B, i.e., the analysis of costs and benefits associated to specific measures and the business opportunities they may create. In turn, results of the Pillar B assessments may also prompt for modifications to the initial list of measures and tasks, so both Pillars should be seen as closely interlinked and iterative.

Forming the right team for the implementation of the project

Donors, lenders and investors will judge the competence of the restoration team. To minimize the risk of missing targets and incurring financial losses, it is essential that the restoration project is effectively supported by a team with balanced expertise and experience not only in fields like engineering and ecology but also with strong management, stakeholder engagement and financial expertise.

Restoration managers seeking to obtain private funds should count with a Financial Officer that holds in-depth understanding of the financial needs of the project, expertise in designing funding and financing solutions and strategies, and the capacity to promote the project to potential donors, lenders and investors (Pillar D). Similarly, team members with an entrepreneurial attitude can be instrumental in executing strategies for fundraising, launching volunteer work campaigns, identifying opportunities for the private sector (see Pillar C).

Establishing an enabling environment, including appropriate stakeholder engagement

Creating opportunities for knowledge sharing and exchange of ideas through dialogue with key stakeholders is critical to gain a more nuanced understanding of wider socio-economic conditions, opportunities and possible tensions in the targeted area. In particular, it can help identify who benefits from restoration and the opportunities that restoration offer to local socioeconomic actors, laying the groundwork for the analysis of future ESs (see Pillar B) and opportunities for consolidating or creating new sustainable value chains (Pillar C).

Stakeholder engagement can also them understand and handle the different interests, ambitions and expectations of the affected parties. From a financial perspective, considering the full range of beneficiaries and their motivations for restoration upscaling over the long-term can also help diversify the sources of funds used to pay for an upscaling project. This builds on the assumption that those who may benefit from

a restored catchment system may also be willing to support its restoration. Diversifying adds resilience as it reduces the project's dependence on a single source of money.

Firstly, a stakeholder analysis should be conducted to identify the individuals and organisations in the area who may affect or be affected by the project. Initially this can be done through basic desk-based research considering aspects like the location, use and ownership of land and infrastructure that could be affected by the restoration measures.

Following on from this, it is important to explore the different attributes of stakeholders. Such an analysis can and should be tailored to project needs. For instance, results of the desk-based research could be supplemented through bilateral exchange with the identified stakeholders to gauge their level of interest and influence. Other restoration managers may decide to set up a stakeholder board to enable long term engagement of key stakeholders' knowledge in the process. This more regular and structured exchange can eventually lead to partnerships established between the restoration team and motivated stakeholders to strengthen the design and implementation activities.

Box 1 - Important considerations for stakeholder engagement

Engaging the key stakeholders of a particular project and learning from them through dialogue takes time and skill. Such processes can be supported by:

1. Existing relationships, networks and experience working with particular stakeholder groups;

2. Willingness to listen to and be open to new ideas and alternative perspectives;

3. Communicating the relevance of initial proposals including appropriate framing of the restoration and its benefits;

4. Communicating the credibility of the actors involved (e.g. expertise and competences of the restoration team).

Assessing costs and benefits, budgetary needs and opportunities of restoration (Pillar B)

The purpose of Pillar B is to define whether it is worth investing in the proposed project from a societal perspective, and to uncover opportunities that businesses could invest on.

It consists of four types of assessments that will be essential in informing the financial strategy of the project:

- ➔ An assessment of the expected changes that the restoration upscaling may cause in natural capital and ESs delivered. This will help assign the impact of the project on key environmental, social and economic dimensions.
- ➔ A social cost-benefit analysis. This will contribute to assess the social and economic implications of investing in the proposed project(s) and help select or design the optimal alternative measures.
- ➔ A mapping of private benefits and business opportunities from the upscaling. This will help identify potential commercial revenue streams stemming from the restoration measures (Pillar C), which may play a role in the design of the funding strategy (Pillar D)
- ➔ An assessment of budgetary needs. This will help to further characterise the capital and operational costs of the upscaling project to define its immediate and long-term budgetary needs.

Impact of restoration upscaling on natural capital accounts and ESs delivery

Natural Capital Accounting (NCA) is a methodological framework to assess changes in stocks of natural capital and flows of ESs. It is used to help public and private entities integrate the value of these items into their decision making. Natural capital consists of environmental assets (geology, soil, air, water and biodiversity) from which humans derive a wide range of ESs (e.g. food provision, carbon sequestration, nature recreation). NCA provides a way to measure these stocks and flows in both biophysical and monetary units.

NCA can help the restoration team to assess the societal benefits of their project by providing a structured, well-established means of quantifying the changes that the restoration measures are expected to cause. After monetary valuation, these changes of ESs flows can then be integrated into a Social Cost Benefit Analysis (see below). Assessing changes of ESs flows also allows to map the users of these ESs, thereby identifying stakeholders which may lose or benefit from the project. This may inform stakeholder engagement efforts, the design of the project, and ultimately its budgetary needs. For instance, complementary measures may be needed to mitigate negative outcomes, or funds may be foreseen to compensate losses of certain stakeholders. Alternatively, business opportunities may arise with actors benefiting from the restoration.

Social Cost Benefit Analysis (CBA)

A social CBA consists of a comparison of the costs of a proposed upscaling project to its positive and negative effects on human well-being (including impacts of ESs at different scales and for different social groups). These effects are determined in comparison to a reference situation in which no action is taken. The resulting comparison of costs and benefits of various alternative project design can be used to better understand potential tensions that may, in part, be shaped by different needs, expectations and assumptions of stakeholder groups. It can also help guide and justify the selection of a proposed project and/or optimize its design. Social CBAs are often used alongside stakeholder analysis tools and other decision support instruments such as environmental impact assessment.

Social CBA already plays an important informative role in many public investments planning processes, including river and flood management. It is a well-established instrument, especially for larger projects. For upscaling restoration projects, it plays two distinct roles in the (financial) planning:

- ➔ To inform the strategic planning phase (Pillar A) by assessing the socio-economic rationale of alternative courses of action. This may result in adjusting, removing or adding restoration measures to ensure an optimal impact on welfare - e.g. exploit the opportunities offered by the restoration project and reduce its potential negative impacts.
- ➔ To provide essential background information for development of the funding strategy. A CBA provides the first overview of costs of measures (and therefore budgetary needs, see below). The assessment of benefits provides the backbone for identifying stakeholders potentially interested in contributing to the project. Such contributions could come as in-kind support, funding without

repayment, and funding with an expected return (e.g. from stakeholders potentially interested to exploit the commodities and other ESs generated by the restoration).

Current practice in CBA is often limited in scope of the effects analysed, giving multi-purpose projects such as restoration and NbS a disadvantage against hard infrastructure solutions. However, a full CBA includes not only the impacts of the project on businesses and economic sectors, but also those on relevant social and environmental systems. Thus, it is of special interest to embed NCA and ESs in CBAs carried out in the context of restoration upscaling.

Box 2 – The importance of an inclusive CBA

Conflict arising from the trade-offs created through a project is a risk to project delivery. Involving different stakeholders in developing a social CBA can enable the early identification of possible tensions. Tensions are inevitable and managing the risk of conflict through a more inclusive social CBA process can create opportunities for collective learning, strengthen relationships and identify potential synergies. Meaningful involvement can increase acceptance and good will. Whilst conflict management skills can be useful, skilled facilitation can help the restoration team constructively work with tensions to avoid conflict and inform the development of a more robust funding strategy.

Mapping of private benefits and business opportunities

The impact of a restoration upscaling project on general welfare is assessed in the CBA. From this starting point, concrete private beneficiaries and business opportunities can be identified. Some (flows of) ESs provide marketable goods or services that can be commercialised –by the restoration manager or third parties– to generate revenues (Pillar C). These in turn could be used to leverage finance (e.g. a loan or capital investment) to pay for upscaling (Pillar D).

For instance, the CBA may quantify carbon sequestration as a project benefit. On this basis, sales of carbon credits can open a revenue stream that the restoration team can use to fund additional measures. Similarly, the benefits assessment may also quantify new opportunities for sport fishing which may induce a local association to contribute (e.g. by providing an in-kind maintenance service) in return for license to fish. While this is not a revenue stream, it reduces the project's maintenance costs. Table 1 below presents examples of restoration projects which generated revenue streams from the delivery of ESs.

Table 1 – Examples of revenue-generating restoration projects and their measures.

Measures	Ecosystem Types	Ecosystem Services	Revenue streams	References
Conversion of intensive agricultural land into natural habitats	Coastal ecosystems	Nitrate pollution reduction (Kg nitrogen pollution removed)	Selling of nitrate credits to estate developers	https://solentlep.org.uk/media/3408/wildlife-trust-nutrients-fbc.pdf
Cover crops and buffer strips, wildflower planting, minimum till methods	Agro-ecosystems	Phosphorus pollution reduction (Kg phosphorus pollution removed)	Selling of phosphorus offsets to a water supply company and a local government	https://corporate.wessexwater.co.uk/our-purpose/investment-schemes/protecting-the-river-avon-in-bath

Woodland creation, leaky dams, ponds and scrapes, hedgerows planting	Various ecosystems in river catchment	Flood risk reduction, carbon sequestration, water quality improvement, biodiversity	Payment for Ecosystem Services by private and public actors	https://www.greenfinanceinstitute.com/casestudies/the-wyre-catchment-natural-flood-management-project/
Forest plantations	Forest ecosystems	Carbon sequestration	Selling of carbon credits	https://www.woodlandcarboncode.org.uk/

Assessing budgetary needs

Building on the cost side of the CBA, this Pillar aims to further characterise the capital and operational costs of the upscaling project to establish its immediate and long-term budgetary needs. Any further step for financial planning will ultimately rest on a solid cost assessment. Hence, the different costs that may be incurred over the project lifetime should be mapped, going beyond the initial CBA, with a more detailed, location specific assessment. The assessment of budgetary needs should also reach a clear understanding of the project cost structure across its different phases, from project preparation, material acquisition, works and operation and maintenance phases. Are the costs continuous or one-off? At what time in the project duration do they occur?

This detailed assessment of costs should be supported by evidence. Ultimately, it will serve to justify budgetary needs to funders (Pillar C), lenders and investors (Pillar D). Hence, the assessment should also show any strategy to reduce project costs and costs. For instance, identifying costs that can be avoided through regular voluntary work, or equipment costs that can be avoided by renting or borrowing.

Characterising funding sources, revenue streams and in-kind contributions (Pillar C)

Pillar C aims to facilitate the consideration of all available funding sources and revenue streams to establish an outlook of potential project income and to enable diversification.

Once the restoration team has the results of the thorough analyses of Pillar B at hand, they can more aptly engage in taking stock of the possible funding sources, revenue generating activities and non-monetary contributions. These different input sources will pose different requirements and conditions and it is important for restoration managers to take this into account early on.

Funding sources and revenue streams can be classified into five general types:

- ➔ Grants, subsidies and donations provided by public authorities or foundations;
- ➔ Commercialisation of conventional commodities enabled by the restoration project – often produced in primary sector value chains (e.g. agriculture, forestry or fisheries);
- ➔ Commercialisation of conventional services enabled by the restoration (e.g. ecotourism and property rental);
- ➔ Commercialisation of credits in environmental markets (e.g. carbon trading and biodiversity offset schemes);
- ➔ Payments for ecosystem services, i.e. transactions set up to secure or improve the supply of ESs.

In addition, in-kind contributions are non-monetary aids that can play an important role in cutting project costs and are often overlooked in the planning phase. Considering opportunities for in-kind contributions early on can reduce inefficiencies throughout the project.

Grants, subsidies, and donations

Public grants and subsidies are governmental policies that directly or indirectly transfer taxpayer money to specific recipients, usually earmarked for specific activities. These are offered by governments at several levels (local, national, EU). Both grants and subsidies require the interested parties to apply for them, sometimes entailing the provision of considerable information about the applicant and the proposed activities. Although grants and subsidies are often used interchangeably, they are distinct funding mechanisms with own features and applicability.

A main advantage of grants is that the recipient does not have to repay the funds. However, a grant renewal is uncertain, which represents a disadvantage for the coverage of costs over time. Grants also come with a set of restrictions and conditions with which the recipients must comply. If these rules are not followed or the money is not spent as indicated, then the grant must be repaid. Subsidies can take various forms, such as direct contributions, loan guarantees, tax breaks or other assistance that governments provide to influence levels of investment and/or prices. The main advantage of subsidies is that they stimulate investments that otherwise would be costly for the private sector to pursue.

Donations are gifts from a corporation or private individual on a not-for-profit, charitable, educational, or religious basis. They generally differ from grants in that the former generally have strict conditionality about how applications must be made, and how the money is to be spent; which is often not the case for donations. Donations can also take various forms, such as money, goods, services and assets. Donations can be raised via crowdfunding campaigns or from corporate entities, wealthy individuals or foundations with philanthropic goals. Such entities may donate to a project in exchange for marketing exposure (e.g. naming of a natural park after the donor) or tax deductions (see Box 3).

Box 3 – Some incentives for private sector donations: tax rebates and corporate social responsibility

Specific types of donations make the donor eligible for tax reductions. Restoration projects could benefit from such arrangements. For example, the Netherlands applies tax reductions to environmental organisations or investments that benefit nature. The more efficient a production process is, the less tax companies will have to pay. These policy measures incentivise companies to invest in projects that may generate wider benefits.

Private companies can also be a source of funding for restoration projects if they seek to engage in corporate social responsibility or adjust to shifts in consumer and investor preferences. For example, L'Oréal created a Fund for Nature Regeneration to restore more than 1 million hectares of degraded marine and terrestrial ecosystems. This came as response to a study showing how a lack of robust environmental management by the firm could damage their brand.

Commercialisation of conventional goods and services

Through changes in land use and physical work stemming from restoration measures, upscaling projects can enable the production of goods and the provision of services that can be commercialised in conventional markets. This may involve developing new value chains that aim to sustainably exploit the natural capital and ESs generated by the restored ecosystem. The revenue generated can be used to cover budgetary needs of ongoing conservation and restoration efforts in the area (Box 4), or to leverage additional funds to upscale.

For instance, floodplain restoration may involve the removal of clay, sand or gravel, which are goods commonly exploited by the mining industry. The restoration team could choose from a number of possible arrangements here e.g., setting up a legal entity with the special purpose of directly commercialising the goods themselves and manage the revenues; have mining firms carry out or pay for the construction works in exchange for access to the extracted materials; establish license charges and/or taxes for the exploitation of the commodities to create a long-term funding stream.

Box 4 - An example of ecotourism initiative from the private sector

The Mediterranean Experience of Ecotourism (MEET) develops ecotourism experiences while benefiting nature and local communities around protected areas. The initiative assesses projects against a number of sustainability criteria and ensures that conservation and local communities are prioritised. MEET is active over 40 protected areas across the Mediterranean Sea and follows a four-step model for ecotourism development: i) develops a local ecotourism cluster with many actors involved, such as SMEs, government and society, ii) develops ecotourism products on one or more sectors, such as food and drink, tours, transports and others, iii) measures sustainability and quality of projects and iv) provides market access to local communities. For instance, through MEET 4 natural parks in Catalunya developed kayak and snorkeling activities for visitors to enjoy natural areas while discovering inaccessible spots along the coast and learning about local wildlife and marine biology through thematic guided tours.

Commercialisation of credits in environmental markets

Some ESs delivered or maintained by restoration projects may be traded in national or trans-national markets. At present, the main example is that of carbon credits. Carbon sequestration may be delivered by several restoration measures, including peatland rewetting and some afforestation initiatives. Depending on whether the scheme arises from mandatory government commitments or voluntary schemes, different standards need to be followed to determine what is eligible as an offset. Tradable units of CO2 equivalent are then sold via national or international brokers, retailers and traders[8].

[8] Galatowitsch, S. M. (2009). Carbon Offsets as Ecological Restorations, *Restoration Ecology,* 17(5), 563-570. https://doi.org/10.1111/j.1526-100X.2009.00587.x

For instance, Chevron embarked on a carbon offset restoration project in partnership with Restore the Earth Foundation. The company aims to support the reforestation in the Mississippi River Basin to sequester carbon, generating offsets to improve its carbon footprint. Simultaneously, the trees are expected to help safeguard the area against flooding and storm damage.

Countries also have markets for other ESs. For example, Germany and the UK have developed markets for biodiversity credits. Property developers are obliged to offset biodiversity losses stemming from new developments through compensation investments and payments. Developers might be able to buy offsets after all steps to avoid or minimise biodiversity loss have been undertaken. For instance, under the German Impact Mitigation Regulation, developers can compensate the impact of e.g. new infrastructure and housing to buy credits from "biobanks". Biobanks in turn pool these resources to fund projects that aim to restore, establish, enhance or preserve biodiversity. The precise details of how these more local schemes operate vary by country and region.

Payments for ecosystem services (PES) and investments to reduce risk

What we call PES[9] encompasses a large range of mechanisms whereby an organisation or group who benefit from an ecosystem service ('beneficiaries'), agree to provide funding or other resources to those who are able to secure or improve the supply of this ecosystem service ('suppliers'). Suppliers are typically restoration managers or land managers protecting or enhancing a particular ecosystem service. The beneficiaries of ecosystem services can be diverse, from cities benefiting from natural flood management upstream or the water industry benefiting from a reduction in pollution emissions from e.g. agriculture and forestry, or enhanced natural water purification through wetland restoration.

PES differ from commercialising conventional commodities since this is not facilitated through a conventional commercial market. PES are very varied and can be based on very different mechanisms:

- Investments and payments by beneficiaries into green infrastructure to replace or complement grey infrastructure. For example, since 2005 the English Water Company, Wessex Water, has worked with and compensated farmers in priority catchments to reduce pollutant loading in rivers. Removing pollutants at source was found to be a more cost-efficient way to achieve compliance with drinking water standards than building large treatment plants to process polluted water (Gosal et al. 2020). Part of their work has included the development of a now-independent 'EnTrade' platform[10], which runs online markets to help buyers (water companies – but other potentially others such as local authorities) and sellers (farmers) find the mutually acceptable best value deals for environmental improvements. EnTrade is part of a range of ways in which Wessex Water engages with farmers and other sectors, for example, it also participates in and supports catchment partnerships.

- Investments in natural flood management to complement 'hard' concrete flood walls are another example. For instance, England's Countryside Stewardship programme provided financial incentives for land managers and farmers to deliver environmental benefits that included those in support of upstream measures that support flood risk management and conservation. The programme covers the costs for such changes.

The benefits offered by ecosystem services do not always have to be precisely quantified and monetarily valued, and the type of information required to justify investment in nature will vary according to the investor. The agreements and transactions set up are specific to a particular stakeholder in a restoration project. Some of these investments may take the form of direct payments to restoration managers, or they may involve transactions agreed directly with land managers or other 'suppliers' of ecosystem services. Such transactions can for example entail the supply of staff or other resources (in kind contributions).

In-kind contributions

In kind contributions are non-monetary aids which generally take the form of goods (e.g. consumables, equipment) and services (e.g. voluntary labour, lending of machinery, land-use rights). In the context of upscaling projects, in-kind contributions can be provided by the actors directly involved in the project, by

[9] Opinions vary as to what should 'count' as PES projects, so you may notice that other sources use more or less restrictive definitions. For more insight into this debate see Martin-Ortega and Waylen (2018).

[10] https://www.entrade.co.uk/

stakeholders and by other third parties to reduce overall project costs. In-kind contributions are not necessarily provided by public authorities or foundations, private actors can also contribute.

Examples for in-kind contributions can be taken from the German environmental NGO NABU e.V, which relies on in-kind contributions to implement restoration measures. The NABU group in Ibbenbüren has received labour, machinery, and sediments from local construction businesses to create a flower meadow as a food source for insects. The company Jasper Gewässerunterhaltung delivered both barren and stable soils, on which the flowering meadow was created. Fehling Kabel- und Rohrleitungsbau assisted with earthworks and WM Handwerkerservice helped to crush and transport large quantities of unsuitable wood with their machinery11. The project has also received rocks and gravel from local quarries that worth about €7,60012.

[11] Striehn, B. 2021. Starke Unterstützung für Vorhaben der Nabu-Ortsgruppe Ibbenbüren [Accessed online, 22.02.2023]. Available here: http://nabu-kv-st.de/newsReader/starke-unterstuetzung-fuer-vorhaben-der-nabu-ortsgruppe-ibbenbueren-618.html

[12] Striehn, B. 2021. NABU-OG-Ibbenbüren freut sich über Sachspenden [Accessed online, 22.02.2023]. Available here: http://nabu-kv-st.de/newsReader/nabu-og-ibbenbueren-freut-sich-ueber-sachspenden.html

Developing a financing strategy (Pillar D)

Pillar D aims to lay out a clear and updated overview of the budgetary needs along the project's lifetime, plan timely cash inputs using suitable financing mechanisms, and establish the financial structure necessary to execute the strategy.

With the original upscaling plan adjusted to incorporate stakeholder feedback and CBA results and having taken stock of possible funding sources and revenue streams, the restoration team can draw a financial outlook and prepare a financing strategy. This will entail conducting a cash flow analysis, selecting suitable financing mechanisms, and setting up an appropriate organisation to channel capital.

Assessing cash flows for the restoration upscaling

Cash flow is the amount of money that moves into and out of an enterprise (e.g. a business or a project). It differs from profit in that the latter indicates the amount of money an operation generates less the costs incurred to carry it out. Alternatively, cash flow indicates an enterprise's financial liquidity at a given time. The distinction is relevant, as even when a business may be highly profitable in the long run, it may not necessarily have the capacity to pay for cost in the short-term.

In the context of restoration upscaling, a cash flow analysis examines how the amount of money in the project's account changes over time as money is received and spent. Restoration managers can use it to estimate future balances based on projections of income and expenditures. Therewith, the team can indicate to lenders and investors whether the project is likely to have sufficient funds to cover cost on their due time, and when additional funds will likely have to be raised. Budgeting and cost estimations at higher resolution (e.g. months rather than years) are necessary, as aggregation will hide periods where the balance may become tight or negative. Figure 2 provides illustrative and simplified examples of different cash flow profiles.

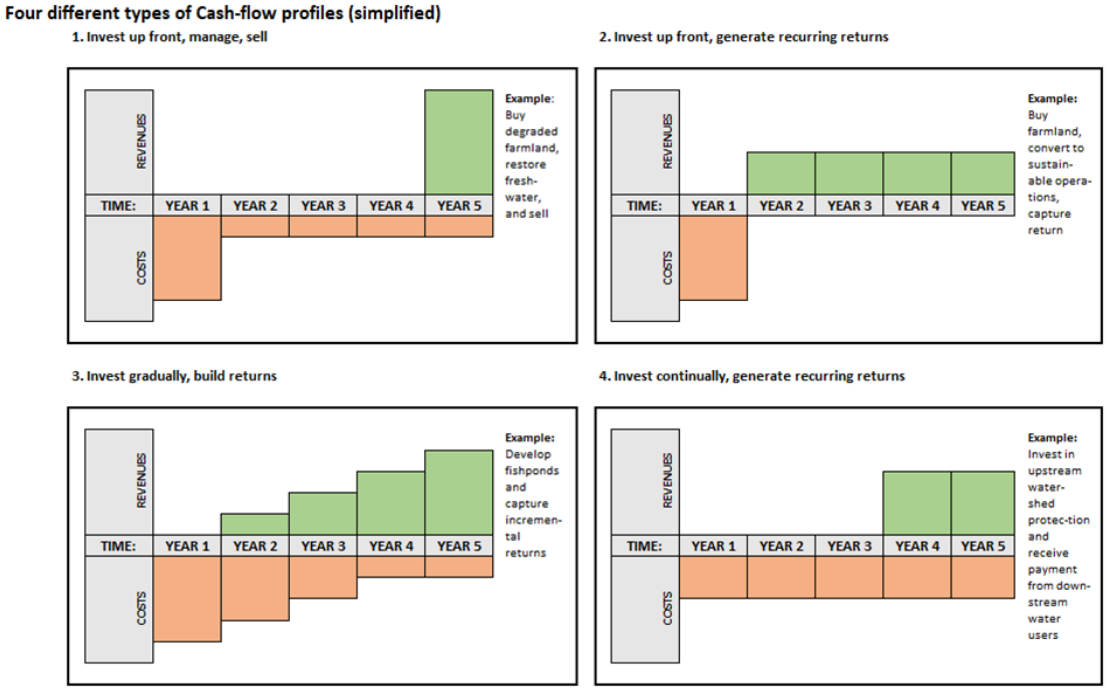


Figure 2 – Four different types of cashflow profiles (simplified). Source: Credit Suisse & McKinsey (2016).

A cash flow profile should build on a realistic and reliable estimation of expected income (e.g. from grants, donations and revenue streams identified in Pillar C), as well as a quantitative analysis of the project's costs (deducting savings from in-kind contributions identified in Pillar C). It is important to consider all project activities (including administrative, physical and research work), their associated costs, and the timing of the latter.

Designing the right financing strategy

The results of the cash flow analysis will provide enough insight for the restoration team to estimate the project's overall funding gap and the main points in time when cash inputs will be required, under different scenarios. These cash inputs refer to funding required on top of what the restoration team consider they will raise via grants, donations, revenues and in-kind contributions. A financial strategy arranges this information to help synchronise budgetary needs with the adequate financing solution(s). For instance, the strategy could involve a loan from a commercial bank at the start of the project to cover large initial capital expenditures associated with the acquisition of land, construction permits, and equipment. Alternatively, the project team could raise the needed capital by partnering with investors who want to acquire a share of ownership over the project and its assets. Further, both these options could be used as supplement to grant money acquired. Such strategic combination of public funds and private finance is called 'blended finance'.

Figure 3 presents a non-exhaustive overview of the types of funding, revenues and financing mechanisms available to form a financing strategy for restoration projects.

Purpose	Instrument	Size (€)	Partnerships	Complexity	Policy Requirements	Project requirements
Funding	Corporate Donations	€ – €€€		↓	×	✓
	Donation-based crowd-funding	€ – €€		↘	×	✓
	In-kind contribution	€ – €€		↓	×	✓
Revenues	Corporate branding	€ – €€		↘	×	✓
	Tourism & agriculture activities	€ – €€€		↗	+	✓✓✓
	Carbon offsets	€€ - €€€€		↑	+	✓✓✓✓
	Biodiversity offsets	€€ – €€€€		↑	++	✓✓✓✓
Financing	Debt (loans)	€ - €€€€€		↘	+	✓✓✓
	Climate bonds	€€€€€		↑	++	✓✓
	Mutual Guarantees	€€ - €€€€€		↑	++	✓✓

- € = >15.000; €€ = 50.000; €€€ = 100.000; €€€€ = 1.000.000; €€€€€ >5.000.000
- 🏭 = private sector businesses; 💸 = private donors; 📜 = verification, certification & auditing services; 💡 = project development consultant; 🛒 = credit retailer; 💲 = financial services; ⚖️ = legal services; 🏛️ = government entity
- 🡻 = low: requiring little to none efforts and financial expertise; 🡾 = low-medium: requiring some effort and financial expertise; 🡽 = medium-high: requiring considerable effort and financial expertise; 🡹 = medium: requiring substantial effort and financial expertise
- X = Instrument does not depend on policies; + = Local policies might be supportive; ++ = Instrument depends on local policies
- ✓ = minor: project should satisfy some voluntary conditions; ✓✓ = basic: project must satisfy some basic contractual conditions; ✓✓✓ = elaborated: project outcome must meet specific requirements; ✓✓✓✓ = extensive: project design must follow a given protocol

Figure 3 – Overview of funding, revenues and financing mechanisms available to restoration projects

Debt as a strategy to cover the financing gap

Debt instruments, such as loans and bonds, are based on a contract between (a) lender(s) and a debtor. The lender provides upfront capital (i.e. cash) to the debtor, who promises to pay back the loaned amount (referred to as the principal) over a set period of time or at an agreed date. Since the money must be paid back, it is not counted as income but as a debt obligation (a liability). Lenders commonly charge interest on the capital (i.e. a price for their service). The interest rate depends on the project (including size and riskiness) and on external factors (e.g. money markets and central bank policy making).

Different types of actors' loan money, including private individuals, public institutions, commercial banks, financing companies, but also civil society organisations (e.g. foundations or NGOs) or any private commercial company. Different lenders have different objectives and accordingly will have different requirements attached to lending. Generally, though, lenders require a certain degree of predictability that the debt will be repaid as expected. For this, lenders might assess the risk of bankruptcy, the compliance of the project with laws and regulations, the performances of similar projects, the soundness of the project management plan, or the likelihood that the project cash flow will be sufficient to meet debt obligations, among other things.

Table 2 – Examples of lending institutions for nature-based solutions.

Organisation	Type of financier	Description
European Investment Bank (EIB)	Lender (debt)	As the European Union's development bank, the EIB can provide large-scale loans for ecosystem restoration and NbS. Examples include the Emscher Renaturierung or initiatives supported through the EIB's Natural Capital Finance Facility.
Rewilding Europe Capital (REC)	Lender (debt)	Financed through the EIB, the REC serves as an intermediary lender, providing loans to commercial initiatives providing biodiversity benefits, such as the Linnunsuo wetland restoration.
UK Infrastructure Bank (UKIB)	Lender (debt)	As the UK's development bank, the UKIB seeks to finance green infrastructure, landscape restoration, and initiatives that enhance natural capital.

Equity as a strategy to cover the financing gap

Equity is the ownership of assets. Equity finance consists of an investor providing money to a business or project in return for an ownership share. In other words, the investor buys part of the business and in doing so acquires a stake on its profits, risks, and sometimes also its management. Equity investors are predominantly motivated by financial returns, which they anticipate either as a dividend (i.e. a portion of the yearly profit set aside for distribution among shareholders) and/or by re-selling their equity share at a higher price (i.e. capital gains) (Banton et al. 2022; Blackrock 2022). Accordingly, equity investors are principally interested in businesses

that convincingly demonstrate a high probability of economic success and low risks. Expectedly, they would treat a restoration upscaling project like any other investment, requiring convincing indication that the NbS will deliver the desired return on their investment at an acceptable risk level.

Overall, investors differ based on their preferences, investment volume, timeline and risk tolerances. This should be carefully considered by the restoration team when seeking financing partners. For instance, some types of investors like venture capitalists and institutional investors engage predominantly in large ventures, meaning they would be a more appropriate partner for large or consolidated projects. Further, whereas institutional investors may engage on a wider range of investment opportunities, venture capitalists are more narrowly interested in firms or projects with high growth potential (e.g. start-ups at their growth stage). Conversely, angel investors support projects when their success or profitability is still highly uncertain (e.g. early-stage start-ups). Impact investors will generally be a relevant investor type for restoration projects, as they seek projects and businesses that generate social or environmental benefits along with (often smaller) financial returns.

Figure 4 shows a generic financial structure that is increasingly used to finance restoration projects (more commonly currently in the global south). Mutual funds are investment structures created and management by specialised investment firms. A mutual fund pools the capital of multiple investors to finance the development of revenue generating projects, which collectively form the fund's portfolio. The profits of the portfolio are distributed as dividends to the investors according to the proportional size of their initial investment. Some investment firms work closely with one or several external project developers, to ensure the bankability of the individual restoration projects. Other investment firms have their own in-house project development facility.

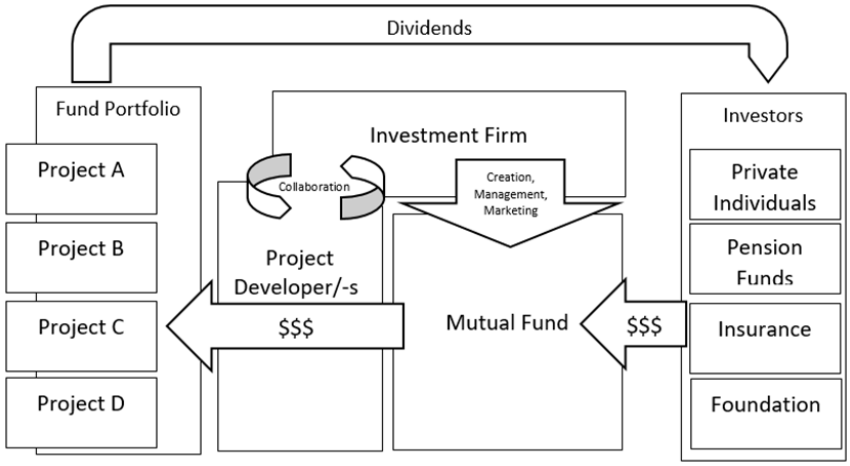


Figure 4 – The generic financial structure of mutual funds.

Table 3 – Examples of investment firms for nature-based solutions.

Organization	Description
SLM Partners	SLM Partners developed the SLM Silva Fund, which buys Irish forest plantations and converts them to close-to-nature forest types managed through more sustainable forestry practices.
Mirova	As a leading European impact investment firm, Mirova has set a focus on nature-based solutions, in particular sustainable forestry and agriculture in emerging markets.
Climate Asset Management (CAM)	As a joint initiative of Pollination and HSBC, CAM seeks to channel investments in European natural capital, including freshwater, regenerative agriculture, and forestry.
Greensphere	Greensphere works with institutional investors to develop profitable and large-scale NbS investment opportunities.
Finance Earth	Finance Earth develops environmental projects, investment strategies, and mutual funds to support NbS at scale.

Cultivio	Cultivio, works with project developers and land owners to make projects investment ready.

Setting up an organization in charge of managing the project and its financing

Special Purpose Vehicles (SPVs) are companies created for a specific purpose, such as financing a particular infrastructure project. To create an SPV, the promoters and sponsors of the project will determine the project purpose, the governance and ownership structure. They will also draft a business plan, register the SPV as a company and raise capital from investors, such as banks, pension funds, insurance companies, or other institutional investors to fund the project. The SPV can also issue bonds or other debt instruments to raise capital or enter into public-private partnerships with government agencies.

Once the necessary capital has been raised, the SPV uses the capital as its budget for the construction and development of the project. The SPV may also use the capital to purchase or lease land and equipment, and to hire the contractors and personnel needed to complete the project. The SPV will manage the project and will be responsible for ensuring that it is completed on time, within its budget, and to the required quality standards. The revenue generated by the project, can then be used to repay the debt and to generate a return for the investors.

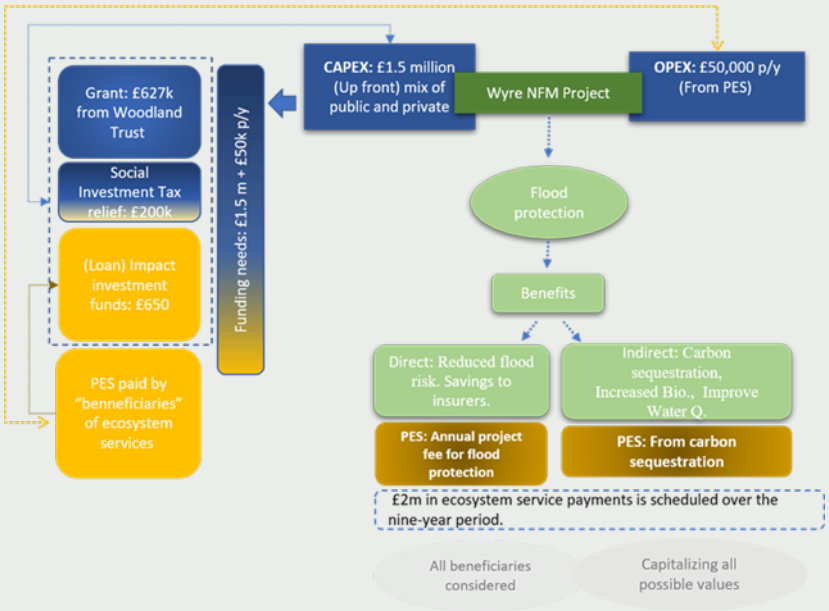
Box 5 - The Wyre River Natural Flood Management Project

The Wyre River Natural Flood Management Project (Wyre NFM Project) aims to use nature-based solutions to reduce flood risk in the Wyre River catchment, using blended finance. The interventions are installed by the Wyre Rivers Trust. The estimated costs of the Project comprise £1.5 million in capital expenditure, and £50,000 a year in running costs, including the land manager payments and maintenance costs of the interventions.

The Project identified beneficiaries to pay for the ecosystem services that these interventions generate. The five buyers identified were Flood Re, United Utilities, the Environment Agency, Wyre Council and the Northwest Regional Flood and Coastal Committee (RFCC). The buyers pay an annual project fee (PES) which is conditional to implementation, maintenance, and performance of the services. NFM is the primary service however, the interventions will also deliver other benefits: carbon sequestration from woodland planting, water quality improvements from reduced nutrient run-off, and biodiversity improvements from the planting of woodlands and grasslands. Revenues will also be capitalised into the project via PES charged to the beneficiaries of these services.

"It's therefore key that other beneficiaries for both flood benefit and wider ecosystems services are found, in order to reduce the cost impact on individual organisations. It is also important to note that payments for the natural flood management benefits alone would not have been enough to make this project viable. Including payments for the other ecosystem services, such as carbon sequestration, was crucial to its success" (James Airton, Natural Capital Strategy and Planning Manager at United Utilities).

Example of the relationship between Ecosystem Services (Cascade) and funding sources applied for the case of The Wyre River Natural Flood Management Project. Figure created by the Author.



The funding to cover the upfront costs (CAPEX) of the project came from a mix of Grants (£627k), Tax relief mechanisms (£200k) and loans (£650k). The last 2 are managed by Triodos Bank. Given that the project is accounting for all possible values generated through these investments (all possible social/env. Impacts), revenue streams are being generated which will enable the repayment of any debt that the project incurred at the beginning, and it generates periodic flows to cover the operational costs in time. Overall, it was estimated that the aggregated value of the ecosystem services being delivered outweighs the cost of creating and maintaining these interventions.

Source: The Wyre River Natural Flood Management Project (greenfinanceinstitute.co.uk)

Annex 4 – Glossary

A glossary of key funding and financing terms was compiled while preparing the MERLIN Workflow, to agree within the consortium on key definitions and as a further material to support exchange with case study partners.

TERM	DEFINITION
(Commercial) revenues	Incomes generated by the regular operation of a particular business, e.g. the sale of carbon credits or other commercial products and services. It differs from cash flow since revenues account only for the products or services sold.
Asset	Anything tangible or intangible that holds or generates economic value (EIB 2020), such as machinery, cash, data, land(-tenure), expertise, and access to natural resources. Natural assets providing a value (i.e. ecosystem services) are thought of as natural capital (see natural capital).
Asset investment	Investments to purchase or improve an asset, while expecting the asset's value (e.g. productive or cost-saving properties) will return the investment, ideally with a profit.
Bankability / bankable project	Synonymous to investment ready. A project that convincingly demonstrates to satisfy the needs of investors, including criteria such as cash flow generating activities, sufficient collateral, success probability of the project, proof of concept and proven track record, among other things (WWF 2020). Also, see Investment Ready.
Biodiversity offsetting	The process of offsetting (presumably) unavoidable biodiversity damage through the creation of new biodiversity benefits (e.g. new habitat creation or restoration). Biodiversity offsetting is used to minimize the net damage of new developments, such as infrastructure or real estate. Habitat banking is a coordinated approach to manage biodiversity offsetting at the local or regional level. In habitat banking, biodiversity credits uniformly quantify the degree of biodiversity damage and benefits. The trade of biodiversity credits allows offsetting biodiversity damage by paying third parties for the provision of biodiversity benefits. Habitat banking can be facilitated through environmental markets or through a central (public) agency, which administers the creation and exchange of credits.
Blended finance	The strategic use of public and philanthropic funds to attract private finance to projects, by reducing risk and investing in enabling conditions.
(Green) Bonds	Bonds are used by large entities (e.g. governments, municipalities, corporates) to generate large sums of funding from many different lenders simultaneously (Fernando et al. 2022). Green bonds generate funding for “sustainable” activities, while so called climate bonds generate funding for climate change mitigation and adaptation.
Capital expenses (CAPEX)	The amount of money that is allocated or spent on one-off and upfront on new assets (investments), such as land property, machinery, buildings, patents, etc. (also, see Asset Investment).
Carbon credits	Tradeable carbon offsets (see below).
Carbon offset(ting)	The activity of compensating (presumably unavoidable) carbon emissions by reducing or avoiding carbon emissions elsewhere, e.g. by sequestrating carbon in moors or planting trees. Carbon offsets are certificates that testify and attribute carbon-offsetting to the owners of the certificate.
Cash-flow	The flow of actual spendable money that is transferred into- and out of an enterprise, as a measure of liquidity.
Collateral	An asset that can be seized from a borrower who fails to repay debt (e.g. a loan) to compensate the lender (EIB 2016).
Commodities	Homogenous and standardized products, e.g. raw materials, that are traded at a more or less uniform price on markets (The Economist 2017).

Cost-Benefit Analysis (CBA)	An analysis of the social-economic costs and benefits of a particular project or activity to support strategic decision-making (Le Coent et al. 2021). This includes the capital and operational costs of a project and possible opportunity costs, intangible costs and benefits, risks, and externalities.
Crowdfunding	A funding mechanism, in which many private individuals separately donate (often small) amounts of money to a specific cause or to enable a specific activity. Donations are often motivated by small rewards or out of intrinsic values. Crowd-funding is predominantly facilitated by specialized online platforms (Baroni et al 2019).
Corporate Social Responsibility (CSR)	A business model based on self-regulation, which aims to improve and maintain social accountability towards its stakeholders and the public (Fernando 2022).
Debt	Money owed to another organization (typically a bank) by the recipient of a loan.
Enabling conditions	The institutional, infrastructural, and policy settings, conditions or circumstances supporting asset investments (e.g. by generating incentives to invest in a particular activity) (Shames et al. 2014).
Equity (financing)	Equity is the ownership of assets. In equity finance, an investor inserts cash or capital into a business in return for an ownership share of the business (i.e. buying a part of the business). Equity investors are motivated by financial returns, which they anticipate either in the form of dividends (i.e. a share of the yearly profits) or by re-selling the equity with a surplus after its value has increased (also called capital gains) (EIB 2020).
Financing	Allocating upfront capital for a specific purpose, while expecting a reflux of that capital. Internal financing involves the allocation of internal financial resources, while external financing involves a contractual relationship with a person or entity providing financing, i.e. a financier (NAIAD 2021). Commercial financiers expect a profit in the form of capital gains (an increase in the value of their equity share), dividends (a share of profit), or interests (for debt financing). Financing is different from funding, which is the activity of ultimately paying for a project without expecting any repayment and capital reflux (Davies 2016).
Funding	The activity of paying for a project without expecting reimbursement or any reflux of the expended capital. Funding mechanisms source funding and allocate it to projects. These include grants, taxes, and donations, among other things. A person or entity that provides funding is called a funder. Funding is different from financing, which is the activity of providing capital, while expecting the reflux of that capital in the future (Davies 2016).
Grant	A sum of cash handed out to support a particular purpose financially without expecting re-payment, generally by governments or philanthropic organizations to support the provision of otherwise underprovided non-market goods (Shames et al. 2014).
Guarantees	An agreement in which a third party (e.g. the state or the EU) agrees to cover any outstanding debt or financial obligation, if a debtor fails to repay a lender (EIB 2020).
Impact investors	Investors (individuals or organizations) that seek to invest in projects and businesses, which have positive and measureable societal and/or environmental impacts. Some impact investors accept higher risks or lower profits for investing into projects and businesses that create positive social or environmental outcomes (Phenix Capital 2022; Shames et al. 2014).
In-kind contribution	A non-monetary donation, e.g. by providing labor, expertise, machinery or other forms of support for free or below market rates (Connectology 2022).
Institutional Investor	Professional investment companies (e.g. banks, pension funds, mutual funds, etc.) that pool funds from clients or members to invest large sums across a variety of different businesses and projects (Shames et al. 2014).
Investment	The outlay of capital to acquire an asset, expecting its value to grow and/or to generate revenues with it (Picardo et al. 2022).
Investment Ready	Synonymous to bankable (project). An enterprise or project that meets requirements and expectations of investors (PWC 2022).

Lender	Any actor who lends out money, often in return for interest payments by which the re-payment exceeds the initially borrowed amount of money. Lender differ from investors, as they do not obtain any ownership over businesses. Accordingly, they are not entitled to any profit shares.
(Green) Loan	The money provided by a lender to a debtor. Loans are based on an agreement between two parties (a lender and a debtor) and are normally repaid over time in fixed (monthly) installments that also include an interest. Thus, the total money to be repaid by the debtor usually exceeds the original money received as a loan. Loans that finance sustainable projects contributing towards environmental objectives are called green loans (World Bank 2021). Although the definition of what constitutes a sustainable project differs, the European Commission aims to establish a unified framework based on the EU taxonomy for sustainable activities (European Commission 2022).
Mainstreaming	Embedding ecosystem restoration action as a norm across society (i.e going beyond restoration being driven and undertaken solely by the environmental conservation sector with action to restore ecosystems also driven from across economic sectors).
Market	A physical or virtual place that facilitates the trade of commodities among multiple sellers and buyers, following the dynamics of supply, demand, and market prices.
Nature-based Solutions	According to the IUCN definition, nature-based solutions involve deliberate action to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits. In contrast to traditional restoration activities nature-based solutions aim towards economic viability (IUCN 2020).
Natural capital	Any natural objects that provide valuable ecosystem services. This can include living organism, inanimate natural objects and systems, and the interaction between these (Barbier 2019; World Forum on Natural Capital).
Opportunity costs	The hypothetical benefits that are missed by choosing one alternative over another (Fernando et al. 2022).
Operational expenses (OPEX)	Reoccurring, regular expenses associated with the day-to-day operations of a particular business, such as expenses for labor, energy, raw materials, management, etc.
Payment for ecosystem services (PES)	A transaction in which the beneficiary of an ecosystem service compensates the provider of the ecosystem service. Special forms of PES include payments for health outcomes, payments for natural flood management outcomes, habitat banking, and payments for water quality outcomes (Esmée Fairbairn Foundation 2020).
Restoration	Deliberate action undertaken to deliver biophysical improvements for enhancing ecosystem functions and processes and enhance biodiversity.
Restoration manager	A person or small group responsible for coordinating the conceptualization, prioritization, planning and/or delivery of a restoration project. Their role may involve facilitating or liaising with many other stakeholders and societal groups, some of whom may take the lead in shaping and delivering specific activities and outcomes within a broader restoration project.
Supply Chain (management)	The organization of sequential steps, in which a single (leading) firm manages the logistics of sourcing raw or intermediary goods and of marketing its final products and services (Feller et al. 2006).
Upscaling	Implementing restoration measures and NbS on larger scales, addressing technological, social, governance and financial processes. This may entail: • The replication of promising restoration measures at many other places. • At a catchment scale, smartly positioning individual restoration measures so that they act in a synergistic way. • Considering and promoting connectivity between (sub)catchments and natural systems in order to foster the resilience and societal benefits of specific projects. The restoration of large areas (e.g. large wetlands) which can act as hotspots for biodiversity and ecosystem services (ESs) and positively affect the surrounding areas. • At continental, country or regional scale, strategically choosing systems and sites to restore identifying sites for restoration based on their potential to deliver benefits for society and help tackle large-scale societal challenges suitability, the envisaged large-scale effects and on efficiency.

Value Chain	The full range of value-adding activities and processes by different economic actors within a sector (e.g. design, extraction of raw materials, transport, storage, processing, export, branding, packaging, wholesale, retail) to produce a final product or service (Feller et al. 2006).

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Annex 5 – Overview of funding and financing instruments

This short overview of funding and financing instruments was prepared during the literature review building to the workflow. A full inventory with detailed description of each instrument is published under McDonald et al. (2023) (developed more specifically for ponds and pondscape restoration).

Type of instrument	Description
Instruments generating revenue	
Betterment levies	A public policy tool, to raise revenues for freshwater restoration projects that benefit certain neighbourhoods, businesses (World Bank 2015).
Biodiversity offsets	Landowners with the capacity to develop sophisticated projects that can demonstrate biodiversity benefits based on the principles of additionality, can access long-term revenues through markets for offsetting certificates (DEFRA 2013; Koh et al. 2019).
Developer contributions and charges	Local governments can raise funds through developer and contribution charges, which can potentially finance freshwater restoration projects. These are one-off compulsory charges paid by property developers as a condition of receiving development approval or as a requirement for rezoning prior to development.
Land sales/leases	The sale or lease of public land (or other assets) can provide financial resources for governments to fund freshwater restoration projects. Revenue from these sales should be explicitly earmarked to be spent to achieve specific objectives (e.g. realise freshwater restoration projects).
Revolving funds	A suitable revolving fund can provide stable and low-interest loans to support large scale freshwater restoration projects, either with a return on investment (RoI) or backed by public revenues.
Sale of development rights and leases	Large-scale freshwater restoration projects that attract many visitors or offer commercial opportunities can generate revenues through the sale of development rights and leases (e.g. restaurants, shops etc.) (Baroni et al. 2019).
User fees	Compulsory or voluntary entrance fee, usage fee (e.g. guided tours, rent for businesses), and/or associated fees (e.g. parking) for accessing restored freshwater ecosystem sites, typically in the context of tourism and recreation (Kettunen and Illes 2017).
Voluntary beneficiary contributions	Negotiated, voluntary payments from beneficiaries (i.e. private companies or individuals who benefit from the restoration of the freshwater ecosystem) to help cover the costs of Nature-based Solutions (NbS). These benefits are typically localized, non-market benefits or accrue indirectly, such as through increased property values. Payments can take the form of one-off donations or ongoing contributions (EY 2016, Baroni et al. 2019).
Market-based instruments	
Credit-trading systems	Where such systems would exist, credit-trading systems could finance freshwater restoration projects, which provide benefits that are legally required for third parties.

Habitat banking	Credits can be produced in advance of, and without ex-ante links to, the debits they compensate for, and stored over time. The instrument enables 'biodiversity credits' to be generated by landowners who commit to enhance and protect biodiversity values on their land through a habitat banking agreement. These credits can then be sold, generating funds for the management of the site. Credits can be used to counterbalance (or offset) the impacts on biodiversity values that are likely to occur as a result of development (eftec et al. 2010; ICF GHK 2013)
Payment for Ecosystem Services	Payment for ecosystem services (PES) schemes remunerate landowners or managers for the provision of ecosystem services. PES are generally voluntary transactions between service users and service providers, conditional on agreed rules of natural resource management, in order to generate offsite services. Payments can be input-based (e.g. based on the costs of managing a site) or output-based, i.e. depending on the achieved level of ecosystem service provision (Wunder 2014; Illes et al. 2017).
Subsidies	Where freshwater restoration projects qualify, subsidies can contribute to the project funding. Governments can provide a subsidy to cover (part of) the costs of installing Green Infrastructure (GI) on private property. This can leverage off the private benefits to landowners from green infrastructure assets, to stimulate additional investments and increase public benefits (Eurostat 2015, Tozer and Xie 2020).
Tax rebate	Where freshwater ecosystem restoration qualifies as a NbS that is eligible for a tax rebate by a given policy, restoration developers could target landowners or other private entities to market their services (Eurostat 2015).
Grant funding and donations	
Crowdfunding	Raising funds for a restored freshwater ecosystem of local public interest through one-off or repeated donations of small amounts from a large number of local individuals, who can experience the benefits of freshwater restoration (Baroni et al. 2019).
Horizon 2020	The EU Framework Programme for Research and Innovation can support freshwater restoration projects with an innovation or research component that is anticipated to produce scientific, financial or socio-economic value (Baroni et al. 2019).
Philanthropic contributions	Charitable donations for NbS projects from private individuals, companies, or other private actors (e.g. foundations, NGOs), with low levels of conditionality (Baroni et al. 2019).
Green finance' (debt instruments)	
Bonds	A way for large entities (e.g., governments or corporations) to raise funds through the debt capital market. By issuing bonds, the issuer borrows money from multiple investors and agrees to repay the principal with interest when the bond matures (EC 2021; Climate Bonds Initiative 2021).
Green bonds	A type of fixed-income instrument that is specifically earmarked to raise money for climate and environmental projects. These bonds are typically asset-linked and backed by the issuing entity's balance sheet, so they usually carry the same credit rating as their issuers' other debt obligations (EC 2021; Climate Bonds Initiative 2021).
Loans	A way to borrow money from a private or public lender (like a bank). The borrower receives a sum (the principal) and agrees to repay it with interest, often through regular instalments over time (LMA et al. 2021).

Green loans	Cities can apply for loans from public or private financial institutions. Some public financial institutions offer low-interest loans for projects delivering environmental and/or social benefits (LMA et al. 2021).
Natural Capital Financing Facility (NCFF)	A financing facility set up by the European Commission and the European Investment Bank (EIB) to support projects focusing on nature and biodiversity and ecosystem-based adaptation to climate change. The NCFF provides funding in two main ways: direct lending or setting up intermediated structures (such as funds or credit lines) via a financial intermediary. The facility is currently in a pilot phase and can sign projects until the end of 2019 (EIB, undated). The NCFF will finance up to 75% of total project costs for direct debt financing but its commitment to a single operation cannot exceed EU 15m. In the case of equity, the maximum participation of the NCFF in funds is of 33%.
Other	
Business improvement districts	A tool for urban planners and real estate developers who consider freshwater restoration as highly critical for the improvement of a city district and their tenants (Sandford 2018).
Community asset transfer	Where the required policies exist, public land could be transferred to community organizations to restore freshwater ecosystems (Locality 2018).
Endowments	An independent trust for long term and large-scale freshwater restoration and management is created and endowed with public assets to finance its activities, which deliver public benefits.
Leveraging existing regulatory requirements	A number of entities with environmental obligations can leverage these requirements to invest in alternative nature-based solutions. Entities, particularly in the water management sector, face regulatory standards that require large investments, usually in high cost and high energy-intensive solutions such as wastewater treatment plants. GI alternatives can be implemented instead, to meet environmental regulations by alternative means.
Regulation and planning standards	No financing tool. Regulations can demand certain measures, e.g. freshwater restoration.
Public Private Partnership	Long-term contracts between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility. PPPs have been used for a range of infrastructure services (government entities 'delegate' service provision to a private entity) and can also be developed for the delivery and/or maintenance of GI. In general, PPPs can take various forms, including operation and maintenance contracts, leases, concessions etc. (Merk et al. 2012).

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Annex 6 – Proposed beneficiary classification for water-related Ecosystem Goods and Services

The list of beneficiaries was compiled to accompany the Workflow, in particular its Pillar B, when scoping benefits of restoration and business opportunities. The list is based on U.S. Environmental Protection Agency (2013) Final Ecosystem Goods and Services Classification System (FEGS-CS).

First level	Second level	General beneficiary description (water focus)	Important of FEGS to the beneficiary	NACE Code
Agricultural				A AGRICULTURE, FORESTRY AND FISHING
	Irrigators	Irrigators interact with aquatic environments, as they consume water from aquatic environments for maintaining crops, often moving water through ditches and canals. Note that Farmers and Irrigators are different beneficiaries.	water for growing and maintaining crops	
	CAFO Operators	This beneficiary raises large, dense populations of livestock in a confined area (whether indoors or outdoors).	water for livestock consumption	
	Livestock grazers	This beneficiary uses the environment to graze livestock. Cultivated vegetation is NOT considered a FEGS. For agroecosystems, "planted" pastures only provide space and opportunity to grow feed (not the vegetation itself).	1) water suitable for livestock consumption 2) non-cultivated vegetation for livestock consumption	
	Agricultural Processors	This beneficiary primarily consumes water for washing edible products.	water for processing edible products	
	Aquaculturists	Aquaculturists farm aquatic fauna, such as fish, shrimp, oysters, etc. Those who cultivate aquatic flora are accounted for under the Farmer Beneficiary Sub-Category.	1) opportunity provided by the environment for cultivating aquatic organisms, 2) conditions (i.e., water quality) provided by the environment for cultivating aquatic organisms	
	Farmers			
	Foresters			

Commercial /Industrial				C MANUFACTURING
	Food Extractors	Food extractors utilize the natural abundance of edible organisms (i.e., non-cultivated or bred) for commercial use or sale. Includes commercial and native hunters (if legal). In aquatic environments, this beneficiary has potential contact with water.	1) edible organisms (i.e., flowers, plants, etc.) or associated products (i.e., fruit, greens, tubers, berries, sap) for commercial use or sale, 2)edible organisms (i.e., birds, mammals, reptiles, etc.) for commercial use or sale	10 Manufacture of food products
	Fiber, timber and ornamental extractors	Timber, fiber, and ornamental extractors rely on the environment for products used or sold commercially. Only non-cultivated, renewable material (i.e., NOT oil, ore, gems, etc.) are considered FEGS.	1) non-cultivated fiber for commercial use or sale, 2)non-cultivated ornamental products or by-products (from cultivation) used ornamentally for commercial use or sale	
	Industrial processors	This beneficiary primarily consumes water for cooling, producing pulp, etc. The water has no contact with edibles.	water suitable for cooling or processing industrial products	
	Industrial dischargers	Industrial dischargers use the environment [only] for discharging water, material (i.e., sand and gravel, garbage), and emissions. Hydraulic fracking practices involve industrial discharge to groundwater.	1) opportunity to discharge into the environment, 2) medium for receiving industrial discharge	
	Electric and other energy generators	This beneficiary relies on the environment for energy or placement of power generation structures, including dams, wind, water, or wave turbines, solar panels, geothermal systems, etc.	1) opportunity to install power generation structures, such as dams and water turbines, 2) flowing water that can be used for energy generation	
	Resource-dependent businesses	Without the environment, this beneficiary would not have the opportunity for businesses, including marinas, stables, and ecotourism (e.g., rafting companies, hot air balloon companies, beach resorts, hot springs, ice hotels) - but not farm or forest land.	opportunity for placement of infrastructure and reduced/increased risk of flooding, erosion, and pest infestation on the property	
	Pharmaceutical and food supplement suppliers	This beneficiary collects organisms from the wild that are used as or for the basis of pharmaceuticals or food supplements for commercial sale. This beneficiary relies on the natural abundance of target organisms.	1) organisms (i.e., flowers, plants, etc.) or associated products (i.e., fruit, greens, tubers, berries, sap) used in medicines or sold for medicinal purposes, 2) organisms (i.e., birds, mammals, reptiles, etc.) or products associated with organisms (i.e., oils, fats, keratin, etc.) used	

			in medicines or sold for medicinal purposes	
	Fur/Hide trappers and hunters	This beneficiary takes advantage of the natural abundance of fauna (i.e., not farm-raised or domesticated animals) for fur or hides for commercial use or sale.	organisms (i.e., mammals and reptiles) that provide fur or hides for commercial use or sale	
Government Municipal, and residential				E WATER SUPPLY; SEWERAGE, WASTE MANAGEMENT AND REMEDIATION ACTIVITIES
	Municipal Drinking water plant operators	This beneficiary is responsible for providing water to a community and may do so by collecting water from rivers, reservoirs, lakes, wells, bays, or estuaries. Water is treated and distributed. Direct precip is not generally used as a water source.	water suitable for processing by a municipal drinking water plant	36 Water collection, treatment and supply
	Waste water treatment plant operators	This beneficiary uses the environment [only] for discharging treated water.	medium for discharging [treated municipal wastewater] into the environment	37 Sewerage
	Residential property owners	While changes in property value are not a FEGS, residential property owners are affected by the environment in which their property resides.	opportunity for placement of infrastructure and reduced/increased risk of flooding, erosion, and pest infestation on the property	
	Military/coast guard	The Military / Coast Guard relies on the environment for the placement of infrastructure (e.g., ports, bases, etc.) or conditions for training activities.	1) opportunity for placement of infrastructure, 2) suitable conditions for training activities	

Commercial / Military transpor-tation				H TRANSPOR-TATION AND STORAGE
	Transporters of goods	This beneficiary uses the environment as a media to transport goods - specifically, via boats (e.g., barges), airplanes, and overland/off-road vehicles (e.g., quads).	1) opportunity for the transportation of goods, 2) medium for and conditions that support the transportation of goods	50 Water transport 50.4 Inland freight water transport
	Transporters of people	This beneficiary uses the environment as a media to transport people - specifically, via boats (e.g., cruise liners, ferries, tour boats), airplanes, and overland/off-road vehicles.	1) opportunity for the transportation of people, 2) medium for and conditions that support the transportation of people	50 Water transport 50.3 Inland passenger water transport
Subsistence				N/A
	Water Subsisters	Water Subsisters rely on a natural source for drinking water and may use wells or cisterns for storage (i.e., they do not receive municipal drinking water). Water purity is important, as water is not or only minimally treated.	water suitable for drinking (i.e., human consumption)	
	Food subsisters	Food Subsisters use the natural abundance of [edible] flora, fungi, and fauna whether collecting, hunting, or fishing as a major supplement to their existence.	1) edible organisms (i.e., flowers, plants, etc.) or associated products (i.e., fruit, greens, tubers, berries, sap) that are gathered for personal use (i.e., not for sale), 2) edible organisms (i.e., birds, mammals, reptiles, etc.) that are hunted for personal use (i.e., not for sale)	
	Timber, Fiber, and Fur /Hide Subsisters	This beneficiary relies on the natural abundance of timber, fiber, and [fauna for] fur / hide for survival. Timber, fiber, and fur / hide used for building material is accounted for in this category.	1) fiber used for clothing/warmth, infrastructure, housing, roofing, and/or fuel for personal use (i.e., not for sale), 2) organisms (i.e., mammals and reptiles) that provide fur or hides used for clothing/warmth, infrastructure, housing, roofing, and/or fuel for personal use (i.e., not for sale)	
	Building material Subsisters			

Recreational				N/A
	Experiencers and viewers	This beneficiary views and experiences the environment via an activity, such as scenery gazing, hiking, bird watching, botanizing, ice skating, rock climbing, flying kites, etc. This beneficiary does not have physical contact with water.	1) opportunity to view the environment and organisms within it, 2) landscape that provides a sensory experience, 3) organisms (i.e., flowers, plants, etc.) that can be viewed, 4) organisms (i.e., birds, mammals, reptiles, etc.) that can be viewed, 5) sounds and scents that provide a sensory experience	
	Food pickers and gatherers	This beneficiary recreationally picks or gathers from the natural abundance of [edible] flora, fungi, and some fauna (as long as it is not fished or hunted). This beneficiary has potential contact with water.	1) edible organisms (i.e., flowers, plants, etc.) or associated products (i.e., fruit, greens, tubers, berries, sap) that are picked and/or gathered for personal use (i.e., not for sale), 2) edible organisms (i.e., insects, some aquatic organisms, etc.) that are picked and/or gathered (i.e., not hunted or fished) for personal use (i.e., not for sale)	
	Hunters	This beneficiary is primarily interested in hunting mammals and fowl (not flora or fungi) recreationally (i.e., not for survival). In aquatic environments, this beneficiary has potential contact with water.	organisms (i.e., birds, mammals, reptiles, etc.) that can be hunted	
	Anglers	Anglers fish recreationally (i.e., not for survival) and include catch-and-release or catch-and-consume activities. Stocked fish are not a FEGS, as they are considered a human input. This beneficiary has potential contact with water.	fish in the water	
	Waders, Swimmers and divers	This beneficiary recreates in or under the water by either wading, swimming, or diving (i.e., snorkeling, SCUBA diving). By definition, this beneficiary has contact with water.	opportunity and conditions for wading, swimming, and/or diving	
	Boaters	Boaters may use motorized (i.e., motor boats) or non-motorized boats (i.e., canoes, kayaks, rafts) to recreate. This beneficiary has potential contact with water.	1) opportunity for recreational boating, 2) medium and conditions for recreational boating	

Inspirational				N/A
	Spiritual and ceremonial participants and participants of celebrations	This beneficiary uses the environment for spiritual, ceremonial, or celebratory purposes, such as harvest festivals, seafood festivals, Native American observances, religious rites (i.e., baptisms, weddings), personal growth, etc.	opportunity and conditions for spiritual and ceremonial practices and celebrations	
	Artists	Artists, amateur and professional, utilize the environment or their experience in the environment to produce art. This category may include writers, cinematographers, and recording artist among others.	1) opportunity for a sensory experience [which may lead to the benefit of inspiration for art], 2) landscape that provides a sensory experience [which may lead to the benefic of inspiration for art] or can be directly used in art (e.g., films, soundtracks, etc.), 3) sounds and scents that provide a sensory experience [which may lead to the benefic of inspiration for art] or can be directly used in art (e.g., films, soundtracks, etc.), 4) natural materials that provide a sensory experience [which may lead to the benefic of inspiration for art] or can be directly used in art (e.g., sculpture, mixed media paintings, etc.)	
Learning				
	Educators and students	This beneficiary includes both formal and self-taught educators and students. All parts of the environment are of interest.	opportunities to understand, communicate, and educate	P EDUCATION 85 Education
	Researchers	Researchers are interested in the environment for academic and applied purposes and as a group do not discriminate over which parts of the environment are of interest.	research opportunities	M PROFESSIONAL, SCIENTIFIC AND TECHNICAL ACTIVITIES 72 Scientific research and development
Non-use				
	People who care (existence)	This non-use beneficiary believes it is important to preserve the environment because of a moral/ethical connection or for fear of unintended consequences.	knowing that the environment exists	

	People who care (option/bequest)	Option/Bequest non-use beneficiaries consider that they or future generations may visit or rely on the environment. This includes beneficiaries that value the traditional aspects or features of an activity or FEGS.	knowing that the environment exists	
Humanity				
	All Humans			
Nature				
	Habitat			
	Species			

Annex 7 – List of 75 revenue generating activities

This list of revenue generating activities was prepared to accompany the Workflow, in particular Pillar C, in assessing options for business opportunities linked to restoration activities.

Nr.	ACTIVITIES
1	Guided eco-tours
2	Wildlife/Nature photography tours
3	Birdwatching expeditions
4	Nature hiking and trekking (including competitions)
5	Wildlife and nature interpretation programs
6	Geo-tourism and Geology Exploration tours that highlight unique rock formations, geological processes, and natural landmarks, educating visitors about the geological history of protected area
7	Canoeing or kayaking tours
8	Stargazing and astronomy tours
9	Biophilic Retreats (immersive retreat experiences that combine nature, wellness, and education)
10	Nature-themed yoga and meditation retreats in nature
11	Forest bathing and wellness retreats
12	Bioacoustic guided tours that focus on the unique soundscape of protected areas, utilizing bioacoustic technology to explore and appreciate the natural sounds produced by wildlife
13	Camping and glamping experiences
14	Drone-based/Cameras Wildlife Monitoring/Tourism with advanced imaging technologies to conduct non-invasive wildlife monitoring and behaviors viewing within protected areas
15	Environmental education and awareness programs
16	Nature-inspired art and crafts workshops
17	Eco-friendly lodging and accommodations
18	Ecotourism transportation services (e.g., electric vehicles, bicycles)
19	Rowing boats rentals (in lakes, rivers)
20	Wildlife art exhibitions and galleries (outdoor)
21	Nature-inspired music and performing arts events
22	Outdoor adventure sports (rock climbing, zip-lining, etc.)
23	Low-impact outdoor event organization
24	Wildlife and nature-themed escape rooms
25	Nature-inspired restaurant or café with local, organic cuisine
26	Outdoor team-building and leadership development programs
27	Ecological and wildlife-themed virtual reality experiences
28	Virtual Reality Nature Experiences that allow individuals to explore and learn about the natural world even not visiting physically it
29	Sustainable Wildlife/Nature Sanctuaries that provide a safe haven for endangered species, allowing visitors to observe and learn about conservation efforts firsthand

30	Organize high-end mobile lunches in the middle of the nature (e.g. www.outstandinginthefield.com)
31	Nature-inspired Culinary Experiences with local chefs and food experts to develop sustainable, locally sourced menus that showcase the unique flavors and ingredients found within protected areas
32	Nature Conservation Games: Develop interactive and educational games that raise awareness about conservation challenges and encourage players to make environmentally conscious decisions
33	Ecological Art Installations: Commission artists to create large-scale installations using recycled or natural materials within protected areas
34	Wildlife and nature-themed community events and festivals
	PRIMARY SECTOR: AGRICULTURE/FISHING/RAW MATERIALS
35	Organic farming and agriculture (e.g. tea)
36	Sustainable fishing and aquaculture
37	Sustainable timber sales
38	Non-timber forest products collection (e.g., nuts, berries, mushrooms)
39	Trees resining (mainly pines)
40	Collect and sell forest residues (e.g. to be sold to pellets factories)
41	Native plant nursery and sales
42	Organic and sustainable food production and sales
43	Sustainable livestock farming and grazing practices
44	Organic and sustainable wine or coffee production
45	Sustainable bee product production (honey, beeswax, propolis)
46	Sustainable water provision and management
47	Mud production with therapeutical features
	ENERGY
48	Renewable Energy Microgrids within protected areas, demonstrating sustainable energy solutions and reducing reliance on non-renewable energy sources
49	Renewable energy generation (e.g., solar or wind farms)
	PRODUCT TRANSFORMATION
50	Herbal medicine production and sales
51	Nature wellness products (essential oils, natural cosmetics, perfumes)
52	Sustainable handicraft production using natural materials
53	Wildlife jewelry production (if doesn't harm the protected area)
54	Nature-inspired brewery or distillery using local ingredients
55	Sustainable firewood (pellets, charcoal...) production and sales
	WILDLIFE AND NATURE-THEMED RELATED PRODUCTS/SERVICES
56	Wildlife rehabilitation centers (supported by donations, paying visitors, zoos and other related entities)
57	Wildlife and nature-themed documentaries or films
58	Wildlife and nature-themed publications (books, magazines, guides)
59	Natural protected area merchandising

60	Ethical and fair-trade wildlife and nature-inspired merchandise
61	Wildlife and nature-themed board games or mobile apps
62	Sustainable e-commerce platforms for nature-friendly products
	OTHER ACTIVITIES
63	Environmental volunteer programs
64	Carbon offset initiatives
65	Sustainable forest carbon sequestration initiatives
66	Sustainable wastewater treatment and management solutions
67	Flood protection services
68	Support services to boat industry (e.g. docking in case of large rivers)
69	Corporate naming/sponsorship/donation
70	Reward-based or Donation-based crowdfunding
71	In-kind contributions from municipalities or other public sector
72	In-kind contributions from companies
73	In-kind contributions from individuals
74	Generous tax credits for corporates or individuals based on donations
75	Strategic partnership with land owners and other stakeholders where they also invest in biodiversity protection

Annex 8 – List of financiers active in ecosystem restoration (non-exhaustive)

This inventory was carried out to accompany the Workflow, in particular Pillar D, when scoping options for raising funds from financiers.

Name	Type	Headquarter	Scope	Description	Website
Capital for Climate	Association / Network	US	Global	The platform will provide investment professionals with the intelligence capabilities, tools, and collaborative mesh they need to readily move capital to the most impactful climate solutions while meeting financial objectives.	https://capitalforclimate.com/
Climate Finance Leadership Initiative	Association / Network	unkown	Global	The Climate Finance Leadership Initiative (CFLI) convenes leading companies to mobilize and scale private capital for climate solutions.	https://www.bloomberg.com/cfli/about/
Conservation Finance Network	Association / Network	US	US	The Conservation Finance Network (CFN) advances land and resource conservation by expanding the use of innovative and effective funding and financing strategies. We support a growing network of public, private and nonprofit professionals through practitioner convenings, intensive trainings, and information dissemination to increase the financial resources deployed for conservation.	https://www.conservationfinancenetwork.org/about-cfn
Convergence	Association / Network	Canada	Global	Convergence is the global network for blended finance. We generate blended finance data, intelligence, and deal flow to increase private sector investment in developing countries. Our global membership includes public, private, and philanthropic investors as well as sponsors of transactions and funds.	https://www.convergence.finance/about
CPIC	Association / Network	unknown	Global	The Coalition for Private Investment in Conservation (CPIC) is a group of leading civil society organizations, private and public sector financial institutions and academia working to deliver a material increase in private, return-seeking investment in conservation.	http://cpicfinance.com/

GIIN	Association / Network	US	Global	The Global Impact Investing Network (GIIN) is the global champion of impact investing, dedicated to increasing its scale and effectiveness around the world.	https://thegiin.org/
Global Landscape Forum	Association / Network	Germany	Global	The Global Landscapes Forum (GLF) is the world's largest knowledge-led platform on sustainable and inclusive landscapes.	https://www.globallandscapesforum.org/
Natural Capital Finance Alliance	Association / Network	unknown	Global	The NCFA is a global alliance of financial institutions pioneering tools and best practice to manage natural capital risks and opportunities. We are supported by leading researchers, consultancies and practitioners on natural capital.	https://naturalcapital.finance/
The Global Innovation Lab for Climate Finance	Association / Network	US	Global	The Global Lab was created to identify and develop innovative instruments that could drive private finance for climate mitigation and adaptation in developing countries.	https://www.climatefinancelab.org/
Conservation Finance Alliance	Association / Network	unkown	Global	The Conservation Finance Alliance (CFA) is the leading global professional alliance of conservation finance experts, practitioners, and organizations.	https://www.conservationfinancealliance.org/
Environmental Finance	Association / Network	UK	Global	Environmental-Finance.com is an online news and analysis service established in 1999 to report on sustainable investment, green finance and the people and companies active in environmental markets.	https://www.environmental-finance.com/company/about-us.html
One Planet Business for Biodiversity (OP2B)	Association / Network	Switzer-land	Global	One Planet Business for Biodiversity (OP2B) is an international cross-sectorial, action-oriented business coalition on biodiversity with a specific focus on agriculture. We are determined to drive transformational systemic change and catalyze action to protect and restore cultivated and natural biodiversity within the value chains, engage institutional and financial decision-makers, and develop and promote policy recommendations that promote nature-positive biodiversity. The coalition is	https://www.wbcsd.org/Projects/OP2B

				focused on three pillars: scaling up regenerative agriculture; enhancing cultivated biodiversity; and protecting high-value ecosystems.	
Scottish Nature Finance Pioneers	Association / Network	Scotland	Scotland	The Scottish Nature Finance Pioneers group aims to build on the interest generated in conservation finance by the Route Map, and is open to anyone to join, from anywhere in the world. Its ultimate aim is to develop and establish new avenues for directing investment into nature projects in Scotland.	https://naturalcapitalscotland.com/project/scottish-nature-finance-pioneers/
Blue Forest	Consultancy / Project Developer	US	US	Blue Forest is a mission-driven, non-profit organization creating sustainable financial solutions to meet pressing environmental challenges. Our flagship financial product, the Forest Resilience Bond (FRB), deploys private capital to finance forest restoration projects on private and public lands to reduce the risk of catastrophic wildfire.	https://www.blueforest.org/
Climate Focus	Consultancy / Project Developer	Netherlands	Global	Our work ranges from advising on international and domestic climate policies, designing climate finance strategies, and supporting our clients using carbon markets. Research and analysis are at the basis of all our work to offer rigorous, comprehensive and high-quality advice on a range of interrelated topics, national and international.	https://climatefocus.com/
Climate Impact Partners	Consultancy / Project Developer	US	Global	Built on the expertise, integrity, and innovation of two companies that have led the voluntary carbon market	https://www.climateimpact.com/who-we-are/
Climate Trust	Consultancy / Project Developer	US	US	The Climate Trust is a non-profit formed in 1997 that manages carbon offset acquisition programs and projects for organizations seeking to reduce their carbon footprint.	https://climatetrust.org/the-climate-trust/
Conservation Investment Management	Consultancy / Project Developer	unknown	Unknown	Our mission is to improve the management of sensitive ecosystems worldwide by developing and scaling up innovative business models that	https://www.conservationinvestment.com/

				support nature conservation, create jobs and generate risk adjusted financial returns	
Consiulium Capital	Consultancy / Project Developer	UK	Global	We are a specialist corporate finance firm dedicated to advising and raising capital internationally for companies and investment funds focussed on sustainable or impact investment. Our mission is to assist clients focussed on business and investments which: Address global environmental or social challenges Are intended to achieve both attractive financial returns and measurable impact.	https://www.consiliumcapital.co.uk/
Credible Carbon	Consultancy / Project Developer	UK	Global	Credible Carbon is a registry that sells credits from projects that are independently audited against carbon market standards that have been approved by the UNFCCC.	https://www.crediblecarbon.com/how-it-works/what-is-credible-carbon/
Credit Nature	Consultancy / Project Developer	UK	unknown	Our solutions can deliver added value for wildlife and increase the economic productivity of your land. Tap into new investment streams for nature recovery projects with CreditNature.	https://creditnature.com/
Earth Mind	Consultancy / Project Developer	Switzerland	Global	Earthmind's professional associates engage with public, private, and non-profit organisations to care for our planet. Earthmind was founded in 2006 as a Swiss-based not-for-profit professional association. From 2010-2019, we also operated as a consultancy in France, and from 2019 as a consultancy in the UK.	https://earthmind.org/
Echosys	Consultancy / Project Developer	France	Europe	We help investors deploy money smartly, and developers and industrial companies get funding efficiently. We intervene in sectors where we can have the most impact on climate change.	https://echosys.co/
EcoAct	Consultancy / Project Developer	France	Global	EcoAct is an international climate consultancy and project developer, helping businesses and organisations succeed in their climate ambitions. Simplifying the challenges and complexities involved,	https://eco-act.com/

				we help you deliver sustainable business solutions for a low carbon world.	
EcoAgricul-ture Partners	Consultancy / Project Developer	US	Global South	We support Landscape Leaders with tools, training, facilitation and connections to manage land and resources holistically so people and nature thrive.	https://ecoagriculture.org/
ECOTIERRA	Consultancy / Project Developer	Canada	Global South	ECOTIERRA is the culmination of over 20 years of work with coffee and cocoa cooperatives and their members. First, as founders of Pro-A, a non-profit, we saw cooperatives through their creation, their first certifications, and their first exports. We then founded Distribution Solidaire, an importing business created to sell cooperatives' certified products in Canada. Working with cooperatives from different angles, and working through the whole value chain cycle, we were able to see firsthand what works and what doesn't.	https://www.ecotierra.co/about
Financial Access	Consultancy / Project Developer	Netherlands	Global South	The demand from a growing global population puts significant pressure on agricultural land to secure food supply. Also, climate change and unsustainable agricultural practices have led to land degradation and massive deforestation. Access to finance, especially for smallholder farmers in developing economies, is an important condition for change. Large investments are needed by farmers to replant, irrigate and to transition to more sustainable practices, but banks generally perceive the risks and costs as too high. To reduce the large demand-supply gap in smallholder finance, financial services providers need to be attracted to the sector in a way that allows them to generate decent economic returns yet contribute to more sustainable agricultural practices and improved environmental protection.	https://www.facsglobal.com/

Forest Trends	Consultancy / Project Developer	US	Global	Forest Trends takes a three-pronged approach to scaling coordinated investments in natural climate solutions: (1) We host high-impact convenings that bring together decision-makers from across sectors and geographies to coordinate actions. (2) We generate cutting-edge data, market analysis, and journalism, for which we've been given the nickname the "Bloomberg of environmental markets" – and we provide it all free of charge. (3) We collaborate with strategic partners to demonstrate innovative financing approaches in practice.	https://www.forest-trends.org/
Green Finance Institute HIVE	Consultancy / Project Developer	UK	Global	In line with the Green Finance Institute's broader vision of a greener future made possible by finance, GFI Hive's mission is to increase private investment in nature restoration, nature-based solutions and nature-positive outcomes in and for the UK. We work with the finance sector, government, academia, environmental NGOs and land managers to identify and unlock barriers to this mission.	https://www.greenfinanceinstitute.co.uk/gfihive/about-us/
i2 Capital	Consultancy / Project Developer	US	US	i2 Capital structures and sponsors innovative finance mechanisms to expand capital solutions for conservation	https://www.i2capitalcorp.com/revolving-funds/water
iGravity	Consultancy / Project Developer	Switzerland	Global	iGravity is an advisory firm specialized in impact investing and innovative financing for development	https://www.igravity.net/index.php
Nature Finance	Consultancy / Project Developer	unknown	unknown	NatureFinance's work is underpinned by three cross-cutting pathways to impact: (1) Effective policy advocacy: increasing market opportunities and the success of nature positive enterprises and investments. (2) Market engagement: creating an ecosystem of investable, nature-related ventures with the potential to shape nature positive markets. (3) Innovation and incubation activities: accelerating nature positive outcomes at scale.	https://www.naturefinance.net/

New Foresight	Consultancy / Project Developer	Netherlands	Global	NewForesight is a strategy consultancy firm specialized in and dedicated to solving current and tough sustainability challenges. Together with our clients we design structural, effective and long-term sustainability solutions that make business sense. At NewForesight we help you find solutions regardless of where you are in your sustainability journey.	https://www.newforesight.com/
Palladium	Consultancy / Project Developer	Global	Global	We work with investors, companies, and land managers who share our goal to contribute to the fight against climate change and restore nature at scale. We offer companies the opportunity to contribute to net zero goals and other environmental, social, and governance (ESG) commitments through the purchase of carbon, biodiversity, water services, and other credits. We create investment opportunities for public and private finance to help seed fund and scale up initiatives whilst delivering financial, environmental, and social impact. We design and apply data tools to track, analyse, and demonstrate the impact that our partners have helped to create.	https://thepalladiumgroup.com/areas-expertise/nature-based-solutions
Quantified Ventures	Consultancy / Project Developer	US	US	Quantified Ventures designs, capitalizes, and scales investible solutions to address the most pressing challenges facing communities.	https://www.quantifiedventures.com/
South Pole	Consultancy / Project Developer	Switzerland	Global	South Pole develops and implements comprehensive emission reduction projects and strategies that turn climate action into long-term business opportunities for companies, governments and organisations around the world.	https://www.southpole.com/
Systemiq	Consultancy / Project Developer	UK	Global	Systemiq is a collaborative system designer, developer and disruptor. Our work is a unique combination of coalition building, specialist advisory services, leadership transformation, policy development, redesign of markets and value chains, capital mobilisation, on-the-ground action, as well as	https://www.systemiq.earth/

				incubation of and investment in early-stage businesses.	
Terra Global Capital	Consultancy / Project Developer	US	US / Global South	Terra Global advises on structuring and implementing institutional arrangements and financing structures for forest and agriculture mitigation activities.	https://www.teraglobalcapital.com/
The Shared Wood Company	Consultancy / Project Developer	France	Global	The SHARED WOOD COMPANY (SWC) is a Nature Based Solutions (NBS) project developer, whose mission is to design, build and operate NBS real assets at scale to tackle biodiversity loss, climate change and rural poverty. SWC specializes in the techniques of preservation and restoration of natural ecosystems to capture carbon for the very long-term, mainly in Latam, Africa and Europe. SWC proposes project development, financing and carbon offset solutions based on nature to its project partners, sponsors, governments and corporate clients.	https://thesharedwood.com/
Treeconomy	Consultancy / Project Developer	UK	unknown	We work hand-in-hand with landowners to calculate the ecosystem services their land produces, supporting the development of their nature-based projects and helping them gain a nature-positive income.	https://www.treeconomy.co/
Wilder Carbon	Consultancy / Project Developer	UK	UK	Our Wilder Carbon Standards ensure that our high quality conservation projects delivered in the UK result in long-term carbon lock-up and real biodiversity gains. Wilder Carbon then matches these projects to UK buyers who are demonstrably reducing their own emissions.	https://www.wildercarbon.com/
Wilderness Markets	Consultancy / Project Developer	US	Global	We believe intact habitats must exist for the good of the planet and humanity. Our mission is to help define sustainable investment opportunities and identify material risks, growth opportunities and paths to protecting natural ecosystems.	https://www.wildernessmarkets.com/

Commonland	Consultancy / Project Developer	Netherlands	Global	Commonland brings a holistic approach to landscape restoration. Our international team of specialists offers our partners a wide range of support tools, advice, guidance and global network to maximize the 4 Returns framework at scale.	https://www.commonland.com/4-returns/
Conservation Capital	Consultancy / Project Developer	UK	Global South	Conservation Capital builds progressive and sustainable links between business, financial and natural capital. We do this to drive more resilient naturally functioning landscapes.	https://conservation-capital.com/
&Green	Investment Company	Netherlands	Global South	&Green's goal is to finance the delinking of major commodity supply chains from deforestation in a way that is commercially viable and replicable. The Fund focuses on the tropical forests and peatlands most in need of protection and invests in the commodity sectors most active in those valuable ecosystems, i.e., beef (livestock), palm oil, soy and forestry (including rubber).	https://www.andgreen.fund/
Agri3 Fund	Investment Company	unkown	Global South	AGRI3 Fund aims to mobilise additional public and private capital at scale, to contribute to sustainable agricultural value chains and avert deforestation.	https://agri3.com/
Akipeo	Investment Company	Canada	Global South	At Akipeo we seek to leverage capital markets to enable the sustainable production of agricultural and other soft commodities in emerging markets. We work with public and private sector clients, investors and partners to develop and finance businesses and projects that profitably deliver environmental and social impact while enhancing food security and livelihoods.	http://akipeo.com/our-company/
AlphaSource Advisors	Investment Company	US	Global South	AlphaSource Advisors is a woman-led impact investment advisory with a holistic landscape approach to sustainable development. Our mission is to drive impact and returns with climate-smart technologies, private debt, and Verified Emissions Reductions to combat deforestation, reverse land degradation,	http://alphasourceadvisors.com/AS_Blog/

				create sustainable livelihoods, protect endangered wildlife, and support forest communities and smallholder farmers.	
Amazonia Impact Ventures	Investment Company	UK	LATAM	Amazonia Impact Ventures is an impact investor taking action to mitigate climate change and enhance biodiversity by protecting the Amazon rainforest and improving the lives of its people.	https://www.amazoniaimpactventures.com/
anew Climate	Investment Company	US	Global	Anew Climate, LLC, was formed from the February 2022 combination of durational industry leaders Element Markets, LLC and Bluesource, LLC. The company has offices in the U.S., Canada, and Europe, and an environmental commodities portfolio that extends across five continents.	https://anewclimate.com/solutions/ncs
AXA Climate	Investment Company	France	Global	We provide consulting services to the agri-food, industrial, financial and public sectors to help them successfully adapt to climate change and biodiversity loss, in a regenerative way. We finance regenerative agriculture. Using the best of satellite imagery, we insure businesses and vulnerable people to provide financial support within hours when they suffer from natural disasters.	https://climate.axa/
Calvert Impact	Investment Company	US	Global	Calvert Impact is a global nonprofit investment firm that helps all types of investors and financial professionals invest in solutions that people and our planet need. We're proud of our 25+ year track record of providing positive social and environmental impact and financial returns — without compromising either.	https://calvertimpact.org/
Clarmondial	Investment Company	Switzerland	Global South	Clarmondial is an independent advisory firm focused on mobilising investments for sustainable natural resource management. Our focus lies on agriculture, forestry and conservation projects, primarily in emerging markets.	https://www.clarmondial.com/

				We help our clients to: Originate, evaluate, structure and execute investment opportunities Resolve financing bottlenecks within projects and supply chains Intermediate between entrepreneurs, investors, governments, corporates and the scientific community Translate research insights and innovative strategies into financial products	
Climate Asset Management	Investment Company	UK	Global	Climate Asset Management is a joint venture between HSBC Asset Management and Pollination. We were formed with the ambition to grow the world's largest asset management company dedicated to natural capital.	https://climateassetmanagement.com/investment-strategies/
Cultivo	Investment Company	UK	Global	Cultivo exists to accelerate finance to regenerate nature. We do this by building portfolios of high quality natural capital that generate healthy financial returns that are good for nature and society. By doing this our goal is to unlock the supply of natural capital at scale.	https://cultivo.land/
Earth Security	Investment Company	UK	Global	We are a global team combining data intelligence; solution designers, investment advisors and big picture thinkers. We are driven by our belief that with our planet's life-support systems on the brink, and the impact on human prosperity on the balance, nature's value must become central across global investment.	https://www.earthsecurity.org/
EdenTree	Investment Company	UK	Global	EdenTree are pioneers in responsible and sustainable investing, having launched one of the first ethical equity funds in the UK, in March 1988. We are proud of our 33-year track record in delivering exceptional, long-term results for our clients. Based in the heart of the City of London, our investment team also have some of the longest continuous track records of any in the UK investment community. Today, we have £3.7bn* of assets under management across our range of funds.	https://www.edentreeim.com/

Encourage Capital	Investment Company	US	Global	Encourage Capital invests in and is designing ecosystem-based investment strategies to address global climate change. Encourage Capital believes that investing in projects focused on the conservation, restoration and improved management of biological systems — such as forests — is one of the most reliable and most cost-effective ways to address climate change.	http://encouragecapital.com/
Finance Earth	Investment Company	UK	Global	We work with partners to develop opportunities where finance can unlock significant environmental and social impact. We help create projects – and the investment vehicles to fund them – that balance positive outcomes for all.	https://finance.earth/
Finance in Motion	Investment Company	Germany	Global	Finance in Motion structures, advises, and manages private debt and private equity funds investing in emerging markets, facilitating financing in areas such as climate action, sustainable agriculture, renewable energy, natural capital, biodiversity conservation, microfinance, and affordable housing.	https://www.finance-in-motion.com/
Gordian Knot Strategies	Investment Company	US	Global	Gordian Knot Strategies is a strategic problem-solving consulting company with a focus on natural climate solutions and expertise in climate finance, impact funds, and carbon markets, and has developed numerous go-to-market plans in these areas. We work in the sectors of wetlands carbon, forestry, renewable energy, dairy bio digesters, grasslands, regenerative oceans, and climate smart agriculture. GKS advises on designs for organizational growth, program implementation, impact fund structures, carbon acquisition portfolios, conservation financing options, and domestic and international carbon policies.	https://gordianknotstrategies.com/gordian-knots-areas-of-expertise/

Greensphere	Investment Company	UK	Global	Greensphere excels in scaling engineered and nature-based technological solutions to solve some of the biggest systemic risks facing our generation. Greensphere is working with major institutional investors to invest in the structured finance of large-scale natural capital projects in sustainable agriculture, forestry, habitat restoration and sustainable land scheme projects. Such schemes range from continuous cover forestry projects to sustainable land schemes.	https://greensphere capital.com/nature-based-climate-solutions/
Intrinsic Exchange Group	Investment Company	US	Global	Intrinsic Exchange Group (IEG) is pioneering a new asset class based on nature and the benefits that nature provides (termed ecosystem services). These services include carbon capture, soil fertility and water purification, amongst others.	https://www.intrinsicexchange.com/
IWC	Investment Company	Denmark	Global	The IWC Group is a leading natural resources investment expert with deep experience in global timberland, agriculture, and responsible investment, providing diversification, inflation hedge, and capital appreciation investment opportunities to institutional investors.	https://www.iwc.dk/about/
Mirova	Investment Company	Switzerland	Global	Mirova is a conviction-based management company that offers its clients investment solutions combining the search for financial performance with environmental and social impact. This is our raison d'être: to contribute to a more sustainable and inclusive economy by increasing our positive impact on environmental issues, but also on reducing inequalities.	https://www.mirova.com/en/invest/natural-capital
Nature Vest	Investment Company	US	Global	NatureVest is TNC's in-house impact investing team.	https://www.nature.org/en-us/about-us/who-we-are/how-we-work/finance-investing/naturevest/

New Forests	Investment Company	AU	Global	New Forests is a global investment manager of nature-based real assets and natural capital strategies. We manage a diversified portfolio of sustainable timber plantations and conservation areas, carbon and conservation finance projects, agriculture, timber processing and infrastructure.	https://newforests.com/
Nuveen	Investment Company	US	Global	As one of the largest investment managers in the world, Nuveen offers solutions for a range of investors across a broad array of asset classes. Nuveen Natural Capital is a land-focused asset management platform. Combining expertise across farmland and timberland investment specialists, we have over 35 years of land-based investing experience.	https://www.nuveen.com/global/about-us/our-people/investment-specialists/natural-capital
Okavango Capital Partners	Investment Company	UK	Africa	Okavango Capital Partners is a commercial investment firm focused on reducing climate risks and biodiversity loss in Africa's important ecosystems by working closely with and promoting the well-being of local communities. Okavango harnesses the power of markets to promote sustainable behaviours at scale to prevent key drivers of nature's degradation.	http://www.okavango-capital.com/
Pollination	Investment Company	UK, USA, AU	unknown	Pollination is a specialist climate change investment and advisory firm, accelerating the transition to a net zero, nature positive future.	https://pollinationgroup.com/
Poseidon	Investment Company	UK / Switzerland	Global	Posaidon is a green finance advisory and investment firm caring about the ecological limits of our planet, which are the physical constraint to any healthy and inclusive economy.	https://www.posaidon.earth/

Rewilding Europe Capital	Investment Company	Netherlands	Europe	Rewilding Europe Capital (REC) is an investment tool with the goal to scale up rewilding impact, develop a nature-based economies and pilot new business models around rewilding landscapes. Rewilding Europe hopes to demonstrate that the restoration of ecosystems in rural regions can be a viable way for economic development, able to generate new business opportunities, jobs and income for local communities. REC provides commercial loans for small businesses that are part of the ERN or located around rewilding landscapes to expand or launch their activities. Businesses that have received funding in the past include a wide range of initiatives from ecotourism companies, to pioneering business models to recover landscapes. REC bridges funding gaps between restoration actions and finance availability.	https://rewildingeurope.com/rewilding-europe-capital/
Robeco	Investment Company	Netherlands	Global	It is our duty to use our financial muscle to contribute to protecting the species with which we share our planet. The need to protect and restore biodiversity is a growing part of sustainable investing.	https://www.robeco.com/en/insights/
SIM	Investment Company	UK / Brazil	Global	Sustainable Investment Management Ltd (SIM) is an environmental finance advisory firm. Our objective is to promote the financing of activities that result in positive environmental impacts worldwide. SIM coordinates the blending and integration of sources of finance, services and activities related to its investments. SIM uses a combination of: Sophisticated financial mechanisms. Advanced technology tools (including remote sensing and blockchain technology). An experienced team of experts and associates in environmental finance, carbon trading, commercial law, and environmental sciences.	https://sim.finance/

SLM Partners	Investment Company	AU	AU	SLM Partners uses investment capital to scale up regenerative agriculture and forestry.	https://www.slmpartners.com/
SWEN Capital Partners	Investment Company	France	Europe	SWEN Capital Partners is a benchmark player in sustainable investments in private equity with more than 6.7 billion euros in assets under management and/or advisory in Europe	https://www.swen-cp.fr/en
Timberland Investment Group	Investment Company	US	Americas	The Timberland Investment Group (TIG) is a timberland investment management organization (TIMO) that seeks to deliver sustainable timberland investments to institutional investors at scale.	https://timberlandinvestmentgroup.com/
Timberland Investment Resources Europe	Investment Company	UK	Europe	We provide our clients with innovative, forest-based investment offerings that optimize long-term performance while contributing to community resilience and environmental sustainability.	https://www.tireurope.com/investing-asset-class/investment-attributes/
UK Infrastructure Bank	Investment Company	UK	UK	We are providing £22bn of infrastructure finance to tackle climate change and support regional and local economic growth across the United Kingdom.	https://www.ukib.org.uk/natural-capital
Triple Jump	Investment Company	Netherlands	Global South	Across our three business lines (Financial Institutions, Direct Investments, and Fund Investments) we work with our clients to design unique, responsible investment solutions that fit both their needs and the market.	https://triplejump.eu/what-we-do/#impact-themes
Climate Investment Fund	Multilateral Organization	US	Global South	The Climate Investment Funds (CIF) is an enabler of pioneering climate-smart planning and climate action in low and middle-income economies, many of which are the least prepared yet the most prone to the challenges of climate change. CIF responds to the worldwide climate crisis with large-scale, low-cost, and long-term financial solutions to support countries achieve their climate objectives.	https://www.cif.org/about-cif
Global Environment Facility	Multilateral Organization	US	Global South	The Global Environment Facility is the world's largest funder of biodiversity protection, nature restoration, pollution reduction, and climate	https://www.thegef.org/

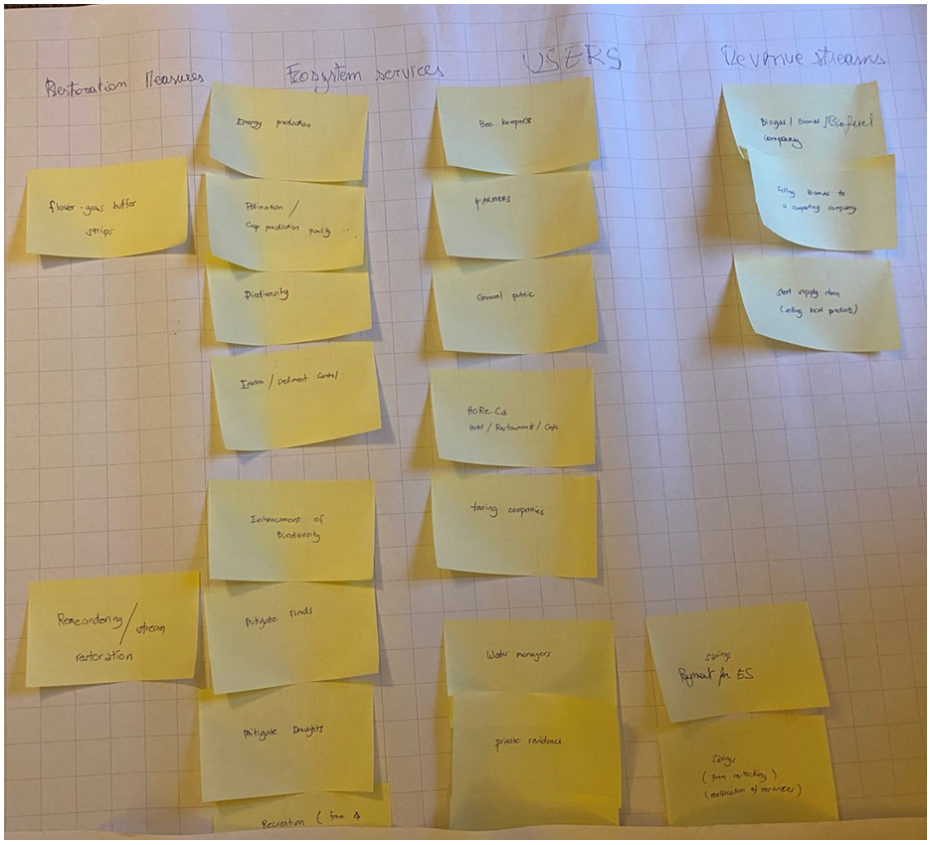
				change response in developing countries. It finances international environmental conventions and country-driven initiatives that generate global benefits.	
UNDP-BIOFIN	Multilateral Organization	US	Global South	BIOFIN is working with countries to create sustainable finance solutions to not only protect biodiversity, but let it flourish.	https://www.biofin.org/

Other identified financiers: Blue Marine Foundation; BNP Paribas Asset Management; BioCarbon Engineering; Pachama; Indigo Agriculture; Ecotrust Forest Management; Agroforestry Net; Terravesta; Eden Reforestation Projects; Forest Trends' Ecosystem Marketplace; Rainforest Trust; Global Forest Partners; Naturescape Finance; Sustain Natural; Wild Capital; Blue Forest Conservation; Rianta Capital; BlueOrchard; NEPCon; Impax Environmental Markets; The BioCarbon Fund; The Nature Trust; Climate Fund Managers; Environmental Investment Organisation; EKO Asset Management Partners; Impax Asset Management Group; ClimateCare; Green Century Capital Management; Climate-KIC; Long Haul Capital Group; Conservation International; Generation Investment Management; ASN Bank; The Long Haul Capital Group; NatureVest; Natural Investments; Natural Capital Partners; First Affirmative Financial Network; Positive Impact Group; SVT Group; The Community Conservation Network; The Nature Trust; The Natural Capital Project; The Resilience Fund; The Solutions Project; Triodos Bank; Triple A Partners; Water Capital Group

Annex 9 – Details on case study engagement

Throughout the project, MERLIN case studies were engaged with to spot funding gaps and gauge the relevance and suitability of available financing options, and to identify potential new financing solutions, in particular testing the potential for private sector contributions. Based on the MERLIN financial workflow, the scoping was organised in two steps.

A first workshop was held with all case studies. Participants were asked to map for their case studies the planned freshwater restoration measures, the expected ecosystem services, the associated beneficiaries and users of the ecosystem services and the revenue streams. An example of the outcome of the mapping exercise is presented below.



A second set of workshops were held with each Cluster to further explore specific funding needs, current coverage of needs by existing sources of funding, previous and ongoing experience with getting public sources of funding and involving private sector in funding freshwater restoration, and options for diversification. The main outcome of the workshops was to map funding opportunities for the WP2 Regional Scalability Plan and a set of ideas on how to diversify funding. These exchanges with MERLIN case studies also helped to collect information on barriers and opportunities for diversifying funding sources towards the private sector for the 'good practice' inventory (D3.5).

Following these two sets of workshops, the task focused on providing feedback to MERLIN case studies on options for funding restoration activities proposed in their RSPs (link with WP2). For this, a systematic review and feedback process was carried out, using 1) optimisation plans (D2.1), 2) draft RSPs (D2.2) and 3) final RSPs (D2.4). These reviews together with exchanges during CLUSTER meetings were also used to collect material for D3.5.

A tailored approach was then opted:

- A number of MERLIN case studies (cf. Forth; Blue Belt; Lima; Emscher; Kampinos; Danube Romania; Bosnia; Komppasuo) were selected to further explore funding options and arrangements. The focus is on case studies with the highest interest to diversify their funding sources. Some of these case studies also attended the Zero Risk Nature Acceleration Programme (see below).

- A second set of MERLIN case studies with previous experience of working with the private sector were selected for interviews to further collect views on the barriers and opportunities for raising private funding and contributions.

The Zero Risk Nature Acceleration Programme (ZRNAP), implemented by Connectology as part of Task 3.7, focuses on exploring additional funding opportunities for nature restoration projects, aiming to reduce reliance on grants and enhance financial sustainability for participants. The theoretical part of ZRNAP consisted of 5 training sessions: Introduction to Financials; Managing the Team for the Best Results; Crowdfunding: Navigating Funding Challenges and Opportunities; Zero Risk Nature Projects; Tips and Tricks on How to Craft Your Presentation. The programme was also the opportunity to promote the Off-The-Shelf Financial Instruments (OTSI). Further information on the ZRNAP and OTSIs is available in D3.7.

Annex 10 – Self-assessment readiness questionnaire

This questionnaire was prepared to assess the level of awareness and readiness of case studies in Year 3 of the project, including progress in understanding of strategies to diversify funding options for restoration. It was implemented in a parallel session during the Consortium meeting of November 2024. The questionnaire is based on the Pillars of the Workflow. The self-assessment questionnaire was designed to be applicable, with small adaptations, beyond the MERLIN project, in any exercise that would assess restoration managers readiness to diversify their funding sources. A total of 29 respondents participated in the survey, with some case studies involving responses from more than one individual.

CS Self-assessment on diversified funding

Thirteen questions to assess your RSP's readiness to engage diverse sources of funding and finance

This short questionnaire is intended for restoration managers, and in this case, for the leaders and other main contributors who drafted the MERLIN Regional Scalability Plans (RSPs). Questions are based on some of the key lessons from our work in WP3F. **The results intend to give an initial indication on how ready the restoration initiative is to diversify its funding sources** -- i.e. going from conventional sources, like public grants, to a mix of public and private contributions.

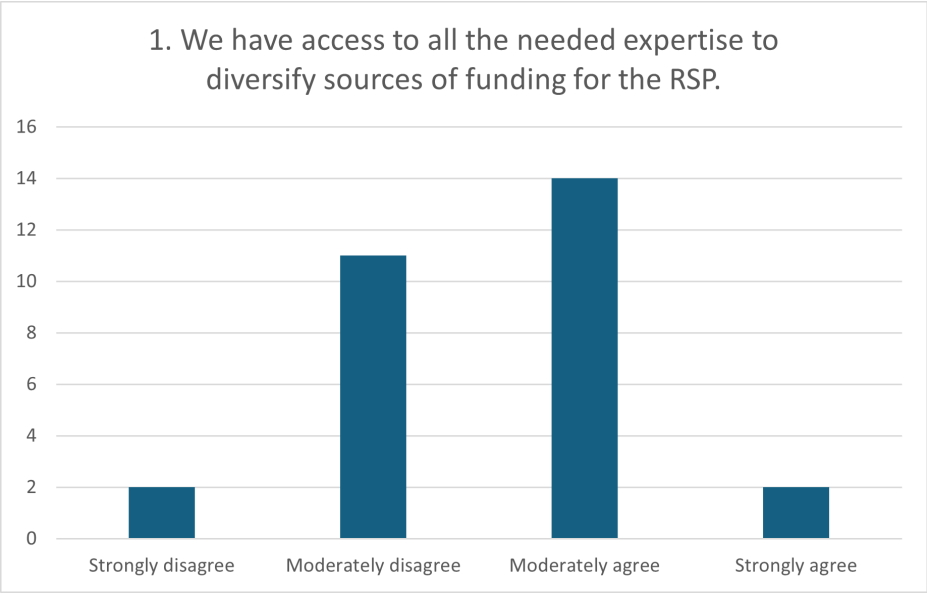
Diversification is a strategy that can make your restoration plan more economically viable, as it can help increase the total volume of funds raised. It also makes your plan **more resilient and less risky from a financial perspective**, as it reduces dependency on a single source of support.

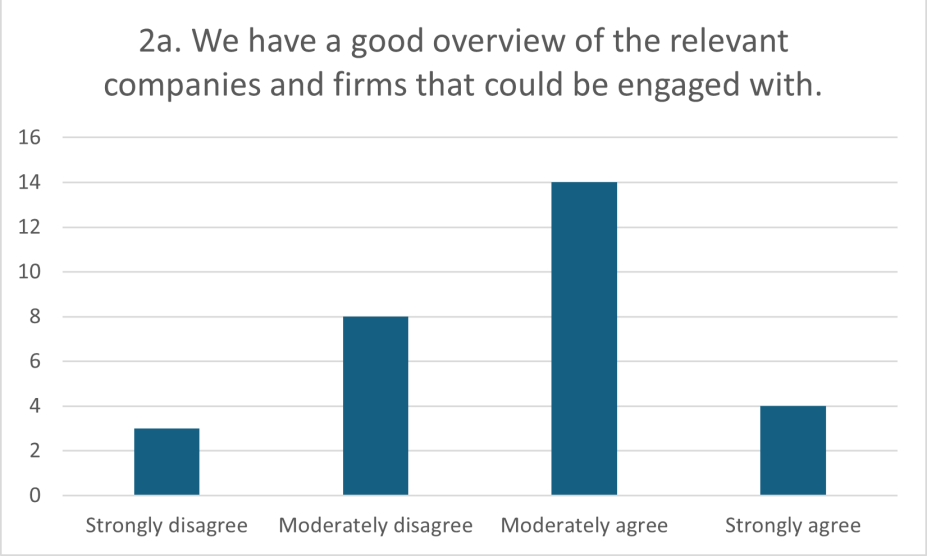
Building capacity and being ready						
1. We have access to all the needed **expertise** to diversify sources of funding for the RSP.	Strongly disagree	O	O	O	O	Strongly agree
Creating partnerships with the private sector to fund the RSP						
2a. We have a **good overview** of the relevant companies and firms that could be engaged with.	Strongly disagree	O	O	O	O	Strongly agree
2b. We have already **established partnerships** with the private sector.	Strongly disagree	O	O	O	O	Strongly agree
Addressing reputational risks						
3a. We are able to **assert the fit** of private sector partners with sustainable standards and regulatory requirements.	Strongly disagree	O	O	O	O	Strongly agree
3b. We have an approach to **address concerns** of working with the private sector early on and maintain a positive reputation with the public and investors.	Strongly disagree	O	O	O	O	Strongly agree
Matching needs with the right instruments						
4. We feel confident in our ability to **evaluate and select** funding instruments that align with our project's needs and goals.	Strongly disagree	O	O	O	O	Strongly agree

Mapping and quantifying impact						
5a. We have the necessary **resources (e.g., data, tools)** - or know where to get them - to conduct a comprehensive impact assessment.	Strongly disagree	O	O	O	O	Strongly agree
5b. We have the **skills and expertise** needed to map and quantify the impacts of our project in clear, measurable terms.	Strongly disagree	O	O	O	O	Strongly agree
5c. We know how to **communicate** the impacts of our project, tailored to meet the specific needs of different funding actors.	Strongly disagree	O	O	O	O	Strongly agree
On commercialisation of restoration benefits						
6a. We have included (rough) considerations of one or more revenue generating activities in our RSP.	Strongly disagree	O	O	O	O	Strongly agree
6b. We identified specific stakeholders who will benefit directly from one or more of the restoration measures included in our RSP.	Strongly disagree	O	O	O	O	Strongly agree
6c. We have first thoughts / general ideas on how these benefits could be commercialised to generate cash.	Strongly disagree	O	O	O	O	Strongly agree
6d. We know which experts or intermediaries can help us to develop a business model to commercialise the benefits we have identified.	Strongly disagree	O	O	O	O	Strongly agree
6e. We have estimated what it would cost to commercialise the benefits we identified.	Strongly disagree	O	O	O	O	Strongly agree
6f. We have estimated how much money could be made from commercialising the benefits we identified.	Strongly disagree	O	O	O	O	Strongly agree
Incentivising private sector involvement and addressing risks						
7a. We have identified **programmes / policies** that could help us establish an agreement or partnership with the private sector to pay for one or more of our planned measures.	Strongly disagree	O	O	O	O	Strongly agree
7b. We identified **specific risks / fears** perceived by potential funders regarding our planned measures and have found ways to address them.	Strongly disagree	O	O	O	O	Strongly agree

Governance structures and processes for accessing/managing private sector resources						
8. We have established a **legal entity** to handle the transactions and operations of our collaboration with private funders and to carry liability for these.	Strongly disagree	O	O	O	O	Strongly agree
Follow up						
Would you like more information on available in-kind technical assistance to evaluate funding options for the NbS of your RSPs?	Yes	O	O	No		
Case Study						
Which Case Study do you belong to?	O Case Study 1 – DK O Case Study 2 – ES O Case Study 3 – SE O Case Study 4 – NL O Case Study 5 - PL O Case Study 6 - B&H O Case Study 7a - AT O Case Study 7b - Danube, HU O Case Study 8 – RO O Case Study 9 - Tisza, HU O Case Study 10 - Blue Belt, DE O Case Study 11 - Emscher, DE O Case Study 12 - Lima, PT O Case Study 13 - Sorraia, PT O Case Study 14 – FI O Case Study 15 – IL O Case Study 16 – BE O Case Study 17 – UK O Case Study 18 - Ervidel, PT					

Results


1. We have access to all the needed expertise to diversify sources of funding for the RSP.
16
14
12
10
8
6
4
2
0
Strongly disagree
Moderately disagree
Moderately agree
Strongly agree


2a. We have a good overview of the relevant companies and firms that could be engaged with.
16
14
12
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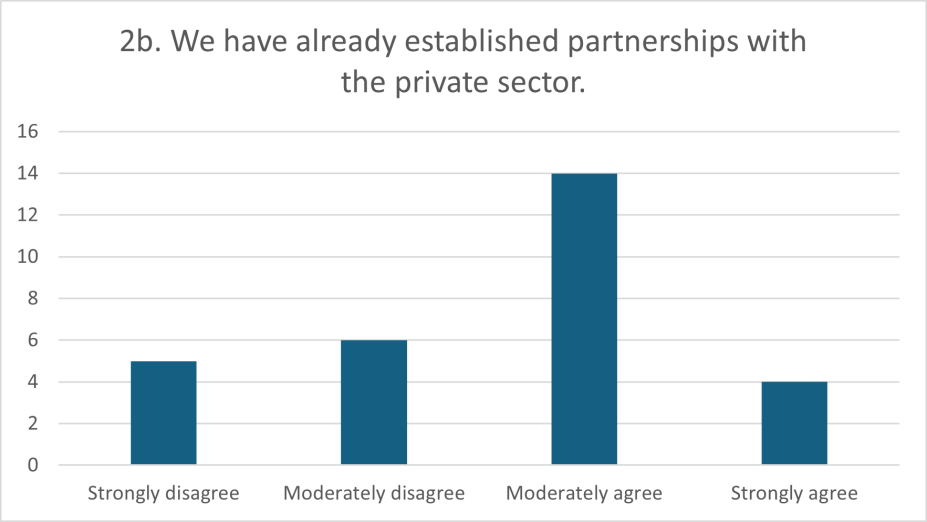
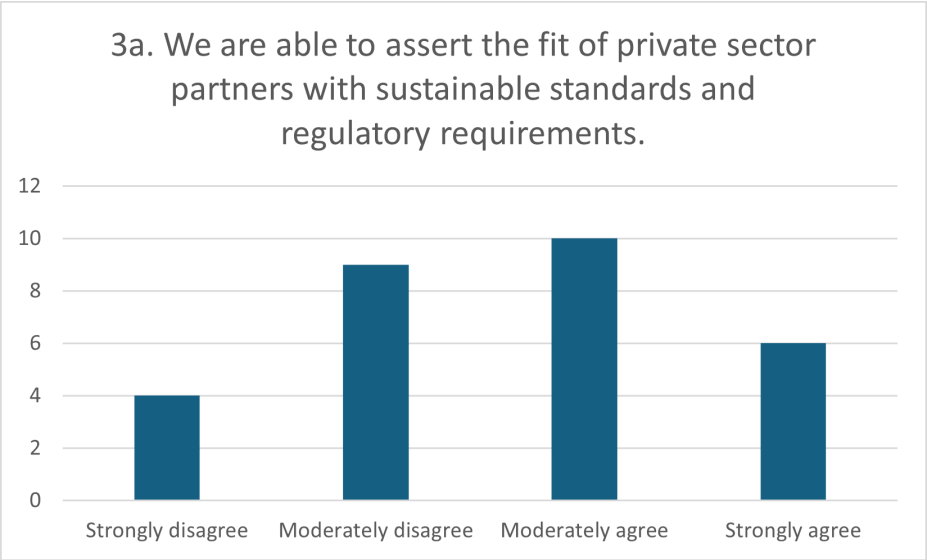
Strongly disagree
Moderately disagree
Moderately agree
Strongly agree


2b. We have already established partnerships with the private sector.
16
14
12
10
8
6
4
2
0
Strongly disagree
Moderately disagree
Moderately agree
Strongly agree


3a. We are able to assert the fit of private sector partners with sustainable standards and regulatory requirements.
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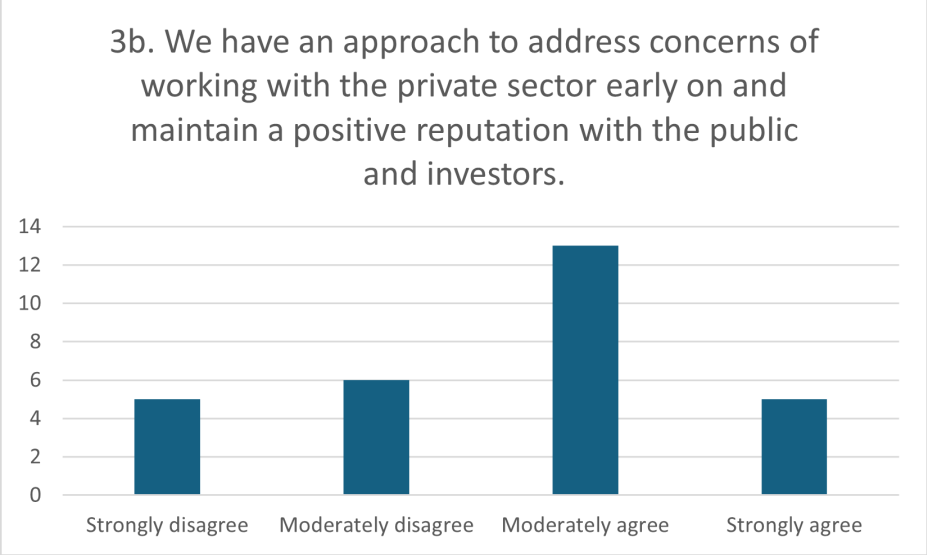
Strongly disagree
Moderately disagree
Moderately agree
Strongly agree


3b. We have an approach to address concerns of working with the private sector early on and maintain a positive reputation with the public and investors.
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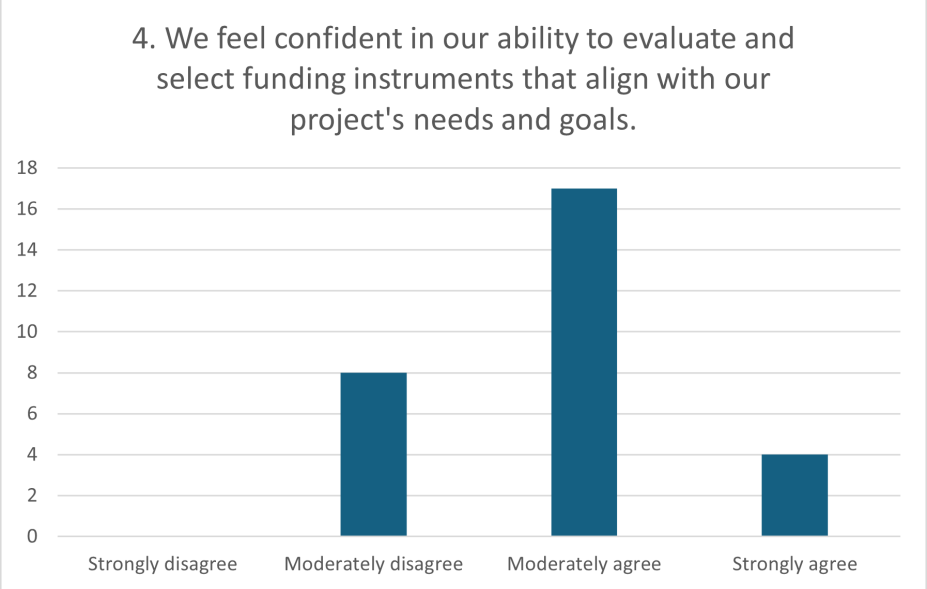
Strongly disagree
Moderately disagree
Moderately agree
Strongly agree


4. We feel confident in our ability to evaluate and select funding instruments that align with our project's needs and goals.
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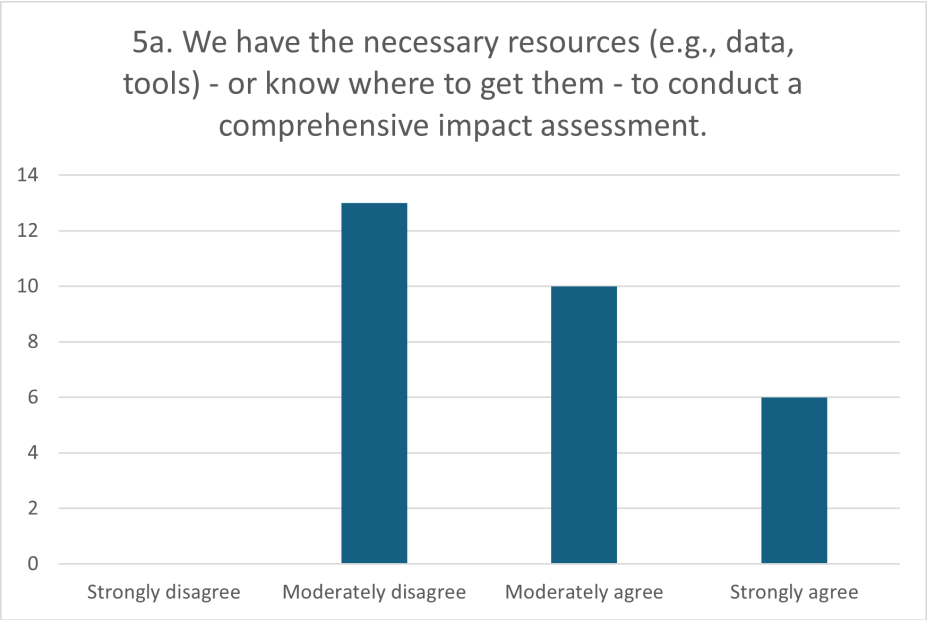
Strongly disagree
Moderately disagree
Moderately agree
Strongly agree


5a. We have the necessary resources (e.g., data, tools) - or know where to get them - to conduct a comprehensive impact assessment.
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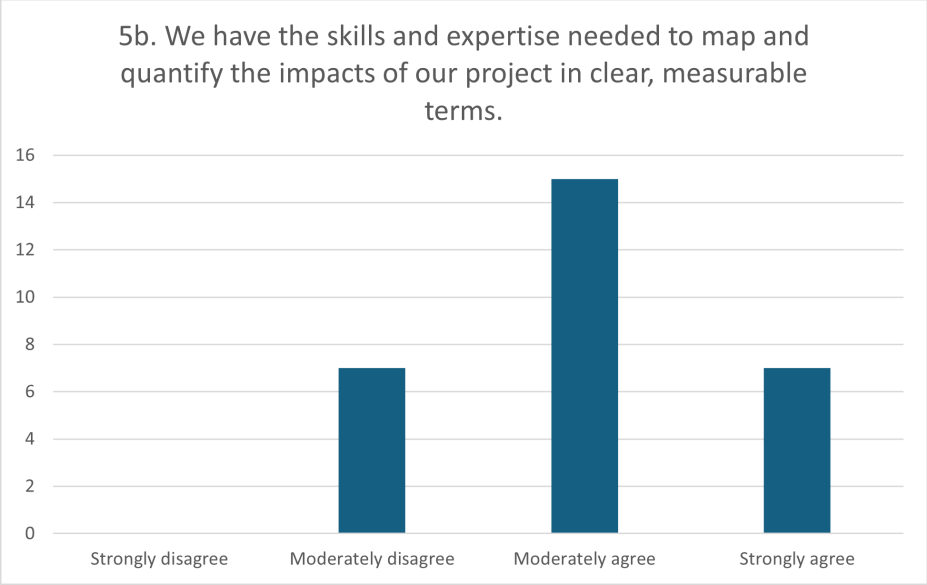
Strongly disagree
Moderately disagree
Moderately agree
Strongly agree


5b. We have the skills and expertise needed to map and quantify the impacts of our project in clear, measurable terms.
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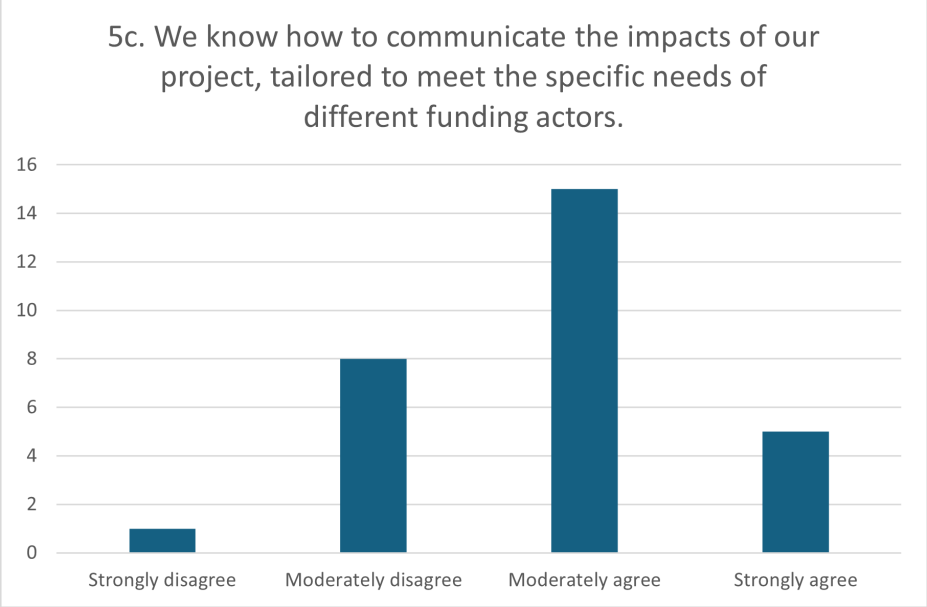
Strongly disagree
Moderately disagree
Moderately agree
Strongly agree


5c. We know how to communicate the impacts of our project, tailored to meet the specific needs of different funding actors.
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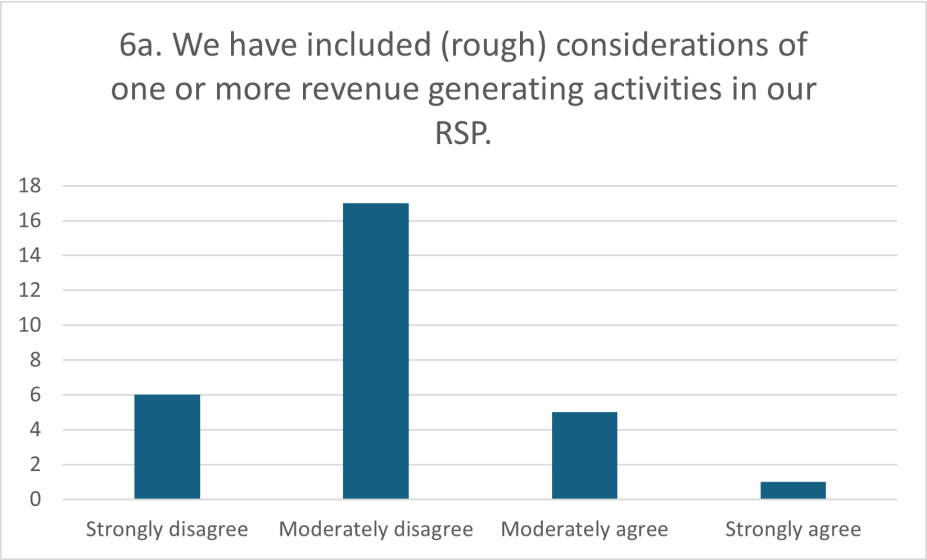
Strongly disagree
Moderately disagree
Moderately agree
Strongly agree


6a. We have included (rough) considerations of one or more revenue generating activities in our RSP.
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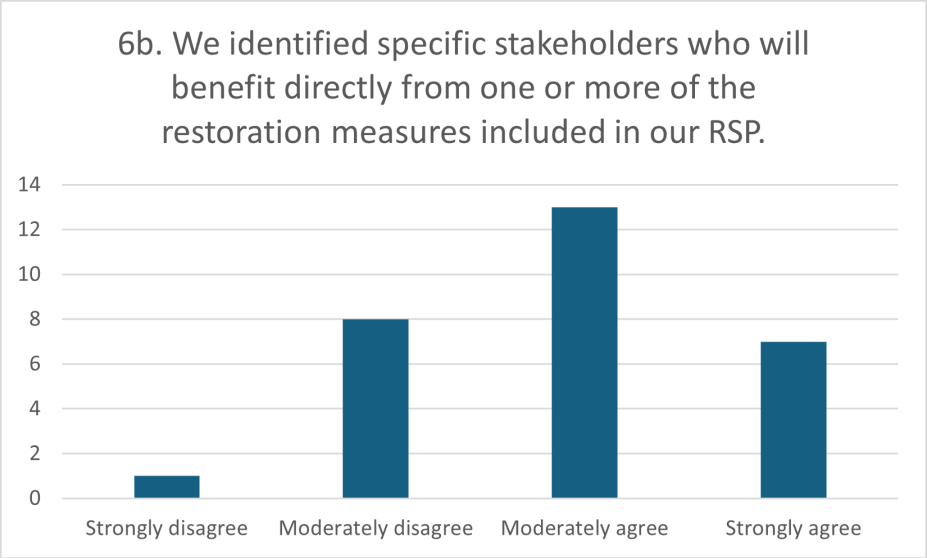
Strongly disagree
Moderately disagree
Moderately agree
Strongly agree


6b. We identified specific stakeholders who will benefit directly from one or more of the restoration measures included in our RSP.
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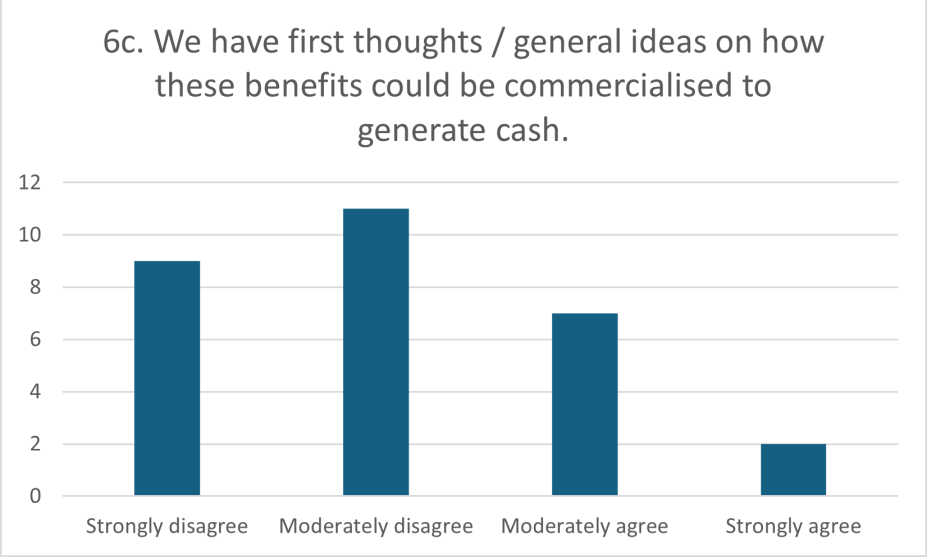
Strongly disagree
Moderately disagree
Moderately agree
Strongly agree


6c. We have first thoughts / general ideas on how these benefits could be commercialised to generate cash.
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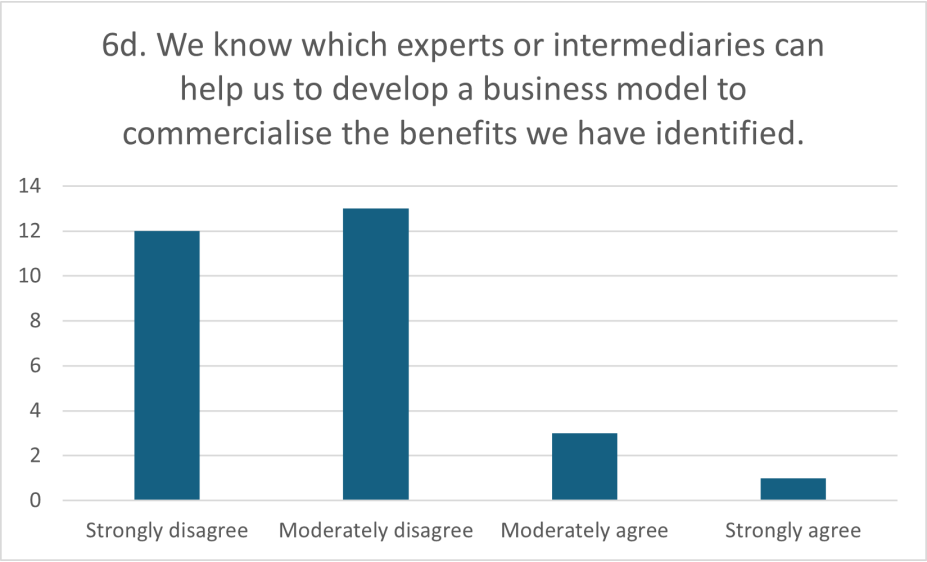
Strongly disagree
Moderately disagree
Moderately agree
Strongly agree


6d. We know which experts or intermediaries can help us to develop a business model to commercialise the benefits we have identified.
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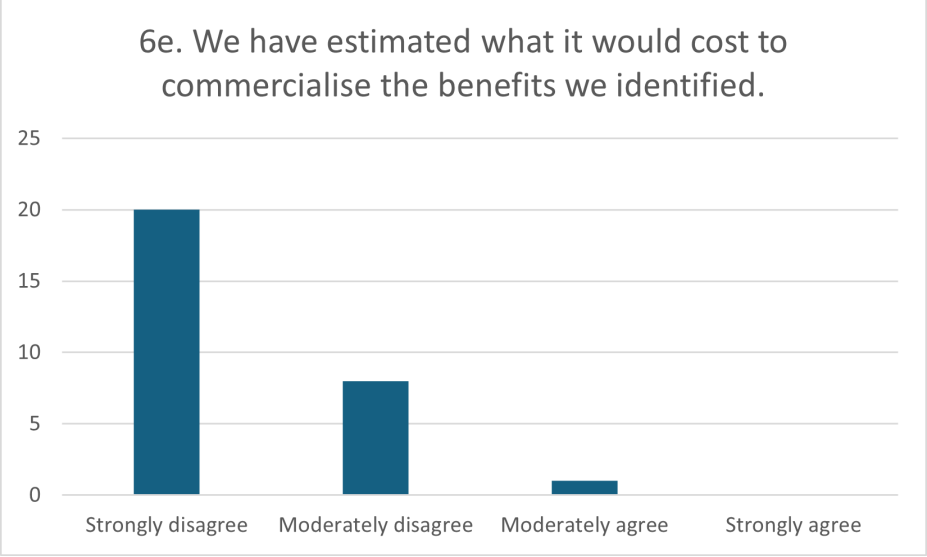
Strongly disagree
Moderately disagree
Moderately agree
Strongly agree


6e. We have estimated what it would cost to commercialise the benefits we identified.
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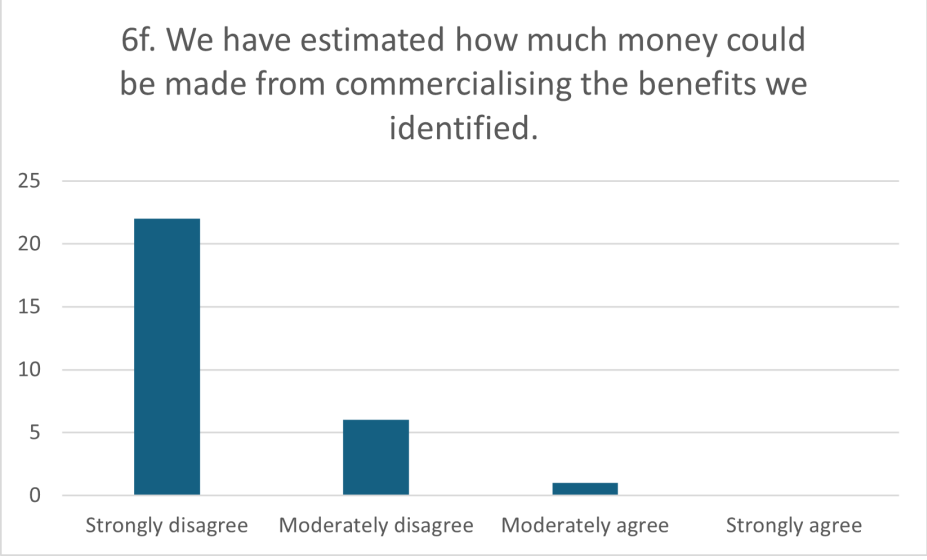
Strongly disagree
Moderately disagree
Moderately agree
Strongly agree


6f. We have estimated how much money could be made from commercialising the benefits we identified.
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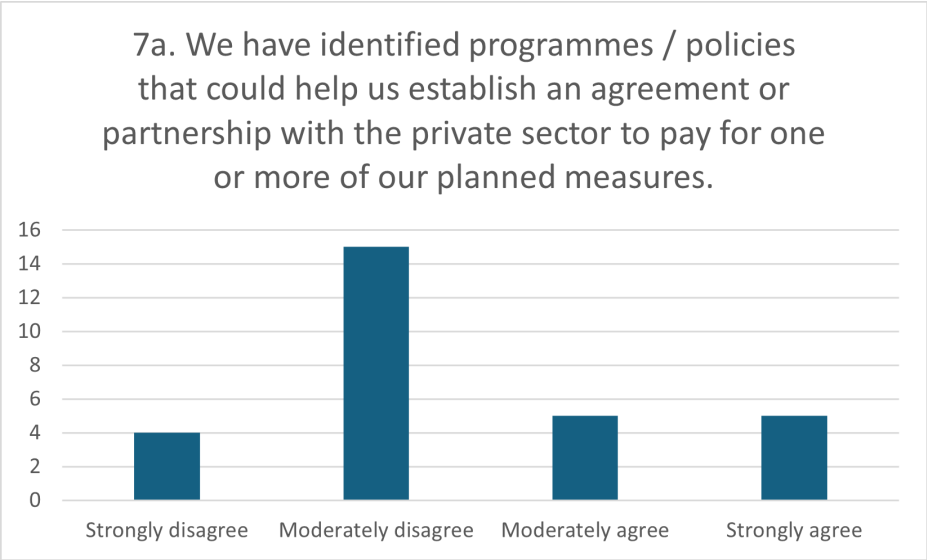
Strongly disagree
Moderately disagree
Moderately agree
Strongly agree


7a. We have identified programmes / policies that could help us establish an agreement or partnership with the private sector to pay for one or more of our planned measures.
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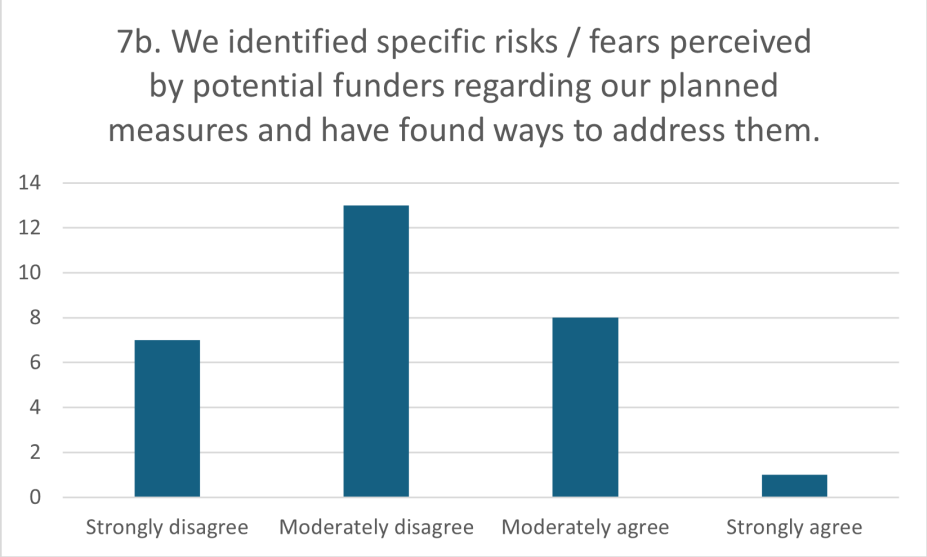
Strongly disagree
Moderately disagree
Moderately agree
Strongly agree


7b. We identified specific risks / fears perceived by potential funders regarding our planned measures and have found ways to address them.
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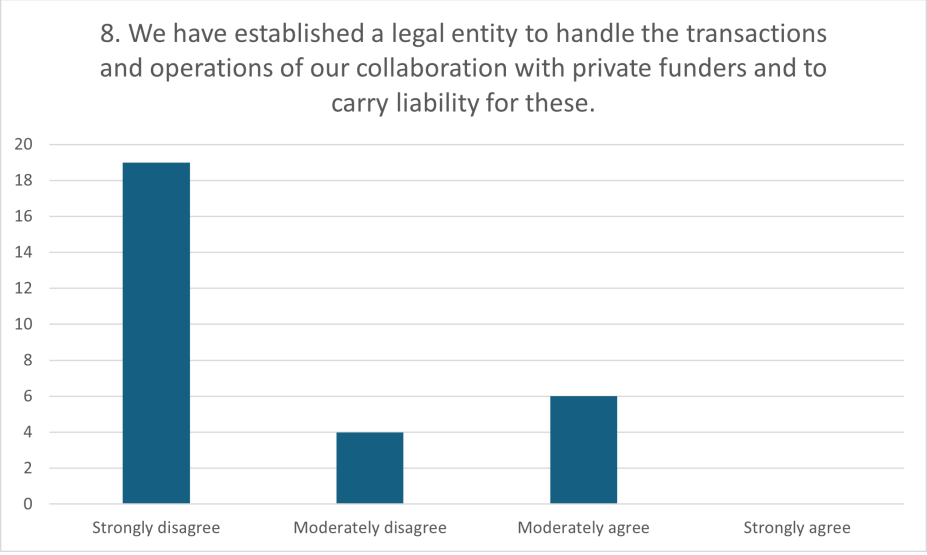
Strongly disagree
Moderately disagree
Moderately agree
Strongly agree


8. We have established a legal entity to handle the transactions and operations of our collaboration with private funders and to carry liability for these.
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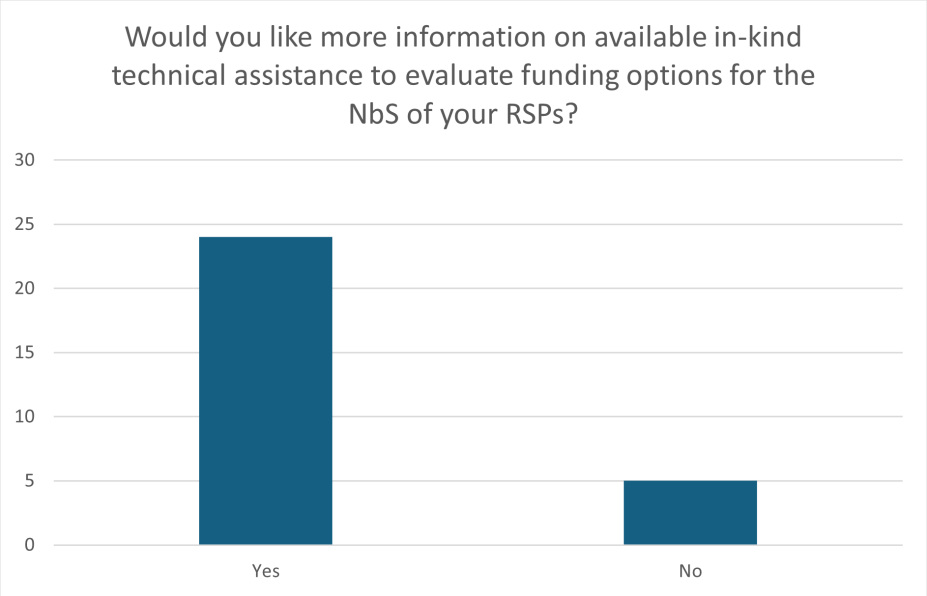
Strongly disagree
Moderately disagree
Moderately agree
Strongly agree


Would you like more information on available in-kind technical assistance to evaluate funding options for the NbS of your RSPs?
30
25
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Yes
No